DOCUMENT RESUME

ED 028 862 88 RC 003 357

Feasibility Study of Resource-Use, Outdoor Education Center, Taylor County, Florida.
Master Enterprises, Athens, Ga.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Pub Date Dec 66
Note-78p.
EDRS Price MF-$0.50 HC-$4.00
Descriptors-Administrative Organization, Budgets, *Educational Facilities, *Feasibility Studies, Federal Aid, *Outdoor Education, Program Descriptions, Program Evaluation, *Program Planning, Resource Allocations, Site Analysis, Socioeconomic Background, *Supplementary Educational Centers
Identifiers-*Florida

Extensive planning in relation to the establishment of an outdoor education center in the State of Florida is reported. The proposed outdoor education center, designed to enrich the public school program if instruction in such fields as conservation, recreation, and resource-use, is outlined. The report contains an account of socioeconomic conditions, a detailed description of the site, program descriptions, organization and administration information, a description of facilities, an illustrated site plan, a complete set of construction and operating budgets for 3 years of operation, and a philosophy of evaluation. The appendix includes a report on the history of middle Florida, a basic bibliography of teaching materials, a list of schools eligible to participate in the project, and a list of organizations and agencies which could provide assistance to the project. This publication is funded by Title III of the Elementary and Secondary Education Act of 1965. (SW)

ED0 28862

Resource Use
Outdoor Education Center
Taylor County, Florida

RC003357

Feasibility Study of Resource-Use
Outdoor Education Center
Taylor County, Florida

Prepared by Masters Enterprises,
Athens, Georgia, December, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Introduction

There has been a growing interest for several years in the establishment of an outdoor education center (or centers) in the state of Florida, designed to enrich the public school program of instruction in such fields as conversation, recreation, and resource-use. The Governor's Resource-Use Education Committee, established in 1948, has long recommended the creation of such a center. Mr. Zollie Maynard of the Florida State Department of Education also foresaw the need for an outdoor education center and began to discuss possible sites with several interested educators throughout the state during the spring of 1965.

The Elementary-Secondary Education Act, passed in the summer of 1965, provides under Title III for funding of centers such as the one planned here.

Section 231.09 (1) of the Florida School Law makes teachers of the state of Florida responsible for the teaching of "conservation of natural resources," which provides legal justification for the existence of the planned center.

During the fall of 1965 the possibility of establishing an outdoor education center was discussed, on an informal basis, with several school districts, with the intent of finding one which showed enthusiastic support for the project. In December, Mr. Ed Howard of the Florida Forestry Service recommended Taylor County to Mr. Maynard as a possible site for an outdoor education center. Taylor County was working with the Outdoor Recreation Planning Committee and the Forestry Service to develop a Forest Capital Center for the community of Perry. This Forest Center is planned to include an auditorium and a forestry museum to be used by the citizens of Perry and to attract tourists to the area. Taylor County seemed an ideal place to locate an educational center for resource use and outdoor education.

On December 21, Mr. Maynard introduced the idea to a group of community leaders and educators in Perry. The response was immediate and most enthusiastic. Mr. Cecil Carlton, General Supervisor for the Taylor County Board of Public Instruction, was appointed to work with Mr. Maynard and his staff in the preparation of a project proposal to be submitted to the U. S. Office of Education requesting funds under Title III of the Elementary Secondary-Education Act for the planning of such a project. The planning grant proposal was submitted in January, 1966, and on April 10, 1966, Mr. Alan Hart, Superintendent of Public Schools in Taylor County, received a letter of approval for the planning grant in the amount of $21,100. The proposal stipulated that the Center would serve the six counties of Dixie, Jefferson, Lafayette, Madison, Suwannee, and Taylor, and these counties were to be covered by the study.

The planning began in April under the supervision of Dr. Janet Wells of Florida State University, who agreed to serve as Director until July 1. On that date the Project Director became Dr. H. B. Masters, Director of the Georgia Center for Continuing Education, University of Georgia.

Acknowledgements

The Director wishes to acknowledge the assistance of those who have been most helpful during the course of this study and without whose aid this report could not have been completed. In particular, these include Mr. Zollie Maynard, State Department of Education, Tallahassee, Florida; Mr. Cecil Carlton, General Supervisor, Taylor County Board of Public Instruction; and Mr. James Southerland, Community Relations Manager, Buckeye Cellulose Corporation. Consultants who have contributed to this study include Mrs. H. B. Masters; Mr. Robert F. Bradford, Assistant Project Director and Project Editor, Center for Continuing Education, University of Georgia, Athens, Georgia; Dr. Janet Wells, Florida State University, Tallahassee, Florida; Mr. Milton Applefield, U. S. Forestry Sciences Laboratory, Athens, Georgia; Dr. Ray F. Broussard, History Department, University of Georgia, Athens, Georgia; Dr. Gayther Plummer, Biological Sciences Division, University of Georgia, Athens, Georgia; Dr. James Green, College of Education, University of Georgia, Athens, Georgia; Dr. Julian Smith, Michigan State University, East Lansing, Michigan; Mr. James Hudson, Planners and Engineers Collaborative, Atlanta, Georgia; Mrs. Roxanna Smith, State Department of Education, Tallahassee, Florida; and Miss Vickey Butler, Project Secretary, Center for Continuing Education, University of Georgia, Athens, Georgia. The report was reprinted with the assistance of the Regional Curriculum Project, Atlanta, Georgia.

Summary

The report contains the usual account of socioeconomic conditions required to accompany most requests for Federal grants. There is a detailed description of the site at Hampton Springs which includes even a timber cruise and a timber type map.

The type of program recommended for the proposed Resource-Use Outdoor Education Center is described at length in the section on Program. As called for in the proposal, the program provides for in-service education for teachers, for the education of school children, and for the use of the Center by outside groups and private individuals. Detailed examples of activities suggested for the Center are described in the section on Program Descriptions. Throughout these sections the emphasis has been on providing facilities and program methods that would allow the Center to "concentrate on new and experimental instructional methods in the field of conservation" so that it "could serve as a model center for other areas of the state or nation in which education of this nature might be initiated."

In order to operate a facility which "would be unique in the State of Florida" and which would involve six county school systems and the State Department of Education, a modus operandi must be developed. An operating methodology which would provide a role for each of these agencies is described in the section on Organization and Administration. It also offers suggestions on such matters as insurance coverage and the hiring order, qualifications, and responsibilities of personnel needed to operate the project.

The section on Facilities describes the physical setting believed necessary to make the Center a reality as envisioned by those who first proposed it.

The report also includes a detailed site plan and sketches of the proposed Interpretive Center and a typical Group Housing unit.

In keeping with the proposal to phase the implementation of the project over a period of three years, a complete set of construction and operating budgets has been prepared.

A philosophy of evaluation has been provided to guide subsequent efforts to gauge the degree of success of various parts of the program.

The Appendix includes a report on the History of Middle Florida which provides basic material for detailed studies of the subject by interested students or teachers; a basic bibliography of teaching materials; a list of schools in the six-county area which would be eligible to participate, with a locater map; and a list of organizations and agencies which could provide assistance to the project.

Socioeconomic Characteristics

Population

One clear sign of "underdevelopment" of a county is a declining population. This indicates lact of employment opportunities in the area as compared to other areas to which residents are able to move. That the population losses in the six-county study area were caused by a lack of local economic opportunity is indicated by the fact that the losses were among the younger population and more often among the white than the non-white population. Four counties of the six being considered had a population decline between 1950 and 1960.

Employment

The three largest industries in the six-county area are Buckeye Cellulose Corporation, Foley; Florida Rock Products Corporation, Live Oak, in Suwannee County; and Metal Products Incorporated, a division of Thompson Industries Incorporated, in Madison, Florida. In the years 1960-1964, forty-two new small industries moved into the six-county area and added a potential hiring capacity of approximately 770 to the economy of the counties. In March of 1965, however, there were only 3400 persons in the six counties employed in manufacturing. This number reflects an increase of 18% over the previous year.

The principal sources of income in these six counties are agriculture, stock raising, and the timber industry. In the Central Florida counties of Jefferson, Lafayette, Madison, and Suwannee agriculture predominates, with tobacco, peanuts, vegetables, cotton, livestock, and poultry being especially important. The tung oil tree is well adapted to this area and there is some acreage planted in tung. Jefferson County is a large producer of pecans and pecan nursery stock. The county is one of the world's largest shippers of pecan trees from nurseries.

The two Florida flatwoods counties in this area, Taylor and Dixie, are less productive agriculturally than the central counties. Lumber and wood products are dominant industries in these counties.

Forests

Taylor County is one of the great timber districts of the state, and in this county are 578,800 acres of commercial forest lands, which is more than 90% of the total county area. Buckeye Cellulose Corporation, which produces premium viscose and acetate grade of pulp, is located in Foley. The world's largest cypress sawmill was, at one time, located in Perry. There are thousands of acres of pine in the county. In addition there are numerous small sawmills and plants producing crossties.

The forest lands in the six county area are predominately pine flatwoods. Slash and long-leaf pines, oaks, cabbage palms, and some grass cover these lands. There is considerable grazing, but little cultivation is possible. There are a few acres of hardwood forests in the north-central section of the counties, and there are isolated areas of swamp forest of water oaks, laurel oaks, sweet gums, black gums, bays, cypress, and cabbage palms. There has been considerable reforestation in all areas.

Income

These six counties have a real lack of economic opportunity. With the majority of the population engaged in agricultural employment, there has been an average drop in per capita income for the area of 2.5% since 1964.

The most recent information shows the median family income for the six-county area at $3,086, or just barely above what the Federal Government has established as the poverty level.

Figure 1

POPULATION STATISTICS, LABOR FORCE DATA, AND ECONOMIC OPPORTUNITIES AND PROBLEMS IN SIX-COUNTY AREA

	1. Land Area Sq. Miles	2. Population	3. % of Population Increase Since 1950	4. Employed Males	5. Employed Females	6. % of Persons Employed in Manufacturing	7. Median Family Income	8. Median Value of Housing Units	9. School Enrollment	10. Median School Year Completed by those 25 and over	11. Farm Area Acres 1959	12. Commercial Forest Area Acres 1959
Dixie	688	4,479	14.0%	900	400	20.6	$3,210	$5,000	1,162	8.3	168.9	388,400
Jefferson	598	9,543	-8.4%	2000	1100	9.9	2,741	5,000	2,502	8.1	190.5	248,700
Lafayette	543	2,889	-16.0%	800	300	10.7	3,342	6,400	750	8.4	107.6	290,300
Madison	702	14,154	-0.3%	3200	1700	22.1	2,614	5,500	4,243	8.0	206.3	317,900
Taylor	1032	13,168	26.4%	2900	1300	34.3	3,844	6,900	3,463	8.4	391.5	578,800
Suwannee	677	14,961	-11.9%	3600	1500	10.1	2,767	5,300	4,108	8.3	297.0	197,200
TOTALS	4240	59,194	+3.8%	13,400	6300	17.9	$3,086	$5,683	16,228	8.2	1361.8	2,021,300

1, 4, 5, 7, 8. Florida Atlas
2, 3. University of Florida, Bureau of Economic and Business Research, 1964
6. Florida Industrial Commission
9. State Department of Education
10. 1960 U. S. Census
11. U. S. Census of Agriculture, 1959
12. U. S. Forest Service

Taylor County Progress

However, in the past few years Taylor County, which would be the site of the Center, has experienced much progress and growth. Between the years 1950 and 1965, Perry, the county seat, grew from a community of only three thousand to a small city with close to ten thousand population. This growth may be attributed largely to two economic developments. Approximately twelve years ago Buckeye Cellulose Corporation built a large plant in Foley, a small community adjacent to Perry. This industry brought employment opportunities to many citizens in the area and improved the economy of the entire county by creating a market for pine timber, which is grown locally in great quantities. The second factor which contributed to the growth of the county was the investment of several million dollars in new motels, restaurants, and service stations on U. S. 19 to serve the tourists using the four U. S. highways which converge in Perry. There are presently 630 commercial lodging units in Perry and 18 dining rooms.

When Interstate 75 opened, however, much of the traffic on U. S. 19 dropped off, causing a subsequent decline in business for motel and restaurant owners. In 1965, therefore, activity was begun on several projects to attract tourists to the area. These developments, the four-laning of Highway 19, and the fact that Interstate 75 is fast becoming overburdened with traffic, have resulted in a gradual return of traffic flow through Perry.

In the fall of 1965, Governor Burns designated Taylor County as the official "Tree Capital of the South." The annual Taylor County Pine Tree Festival had grown to such an extent that the Governor suggested that it be placed on a statewide basis.

Forest Capital Park

The people of Taylor County accepted the suggestion and named the festival "Florida's Forest Festival." It was then decided that the festival should be supplemented by a new Forest Capital Park in Perry. Planning and development on this park are currently underway, and support and interest grow every month. The park, with all its facilities, will be available for use by the students and personnel of the Outdoor Education Center. The following are some of the most recent plans, facts, and figures concerning the park.

The park area, itself, includes 40 acres with other acreage owned by the Taylor County Development Authority adjacent and available as development requires. The land is part of an old airport site owned by the Development Authority with frontage on Highway 19. It is valued at $150,000. Paralleling the park to the south is a twenty-five acre site for a vocational-technical school. Approximately $325,000 has been appropriated for the school, its director hired, and completion set within a year.

A "Memorial to the Tree" is now under construction to be erected in the park. Mr. Gene Arant, artist from Tallahassee, designed the memorial and is directing its construction by local volunteers. The memorial will be a modern wood sculpture and one of the largest in America. Huge cypress tree trunks, over a thousand years old, will be sculptured and bolted to a concrete arch. The arch will be ten feet tall at the center and over twenty-five feet wide. The cypress logs (some over 30 inches in diameter and thirty feet long) will rest on the arch, making the memorial well over thirty feet tall. Cypress is used on the memorial as it defies decay and is known as "the wood eternal." A grafted "super pine" will be planted at the dedication of the memorial as a symbol of the "tree of tomorrow."

A Museum of Forestry will be constructed in the park by the Florida Board of Parks. The museum is in the current budget of the Board of Parks, and construction plus displays push its cost to over $100,000. This part of the project awaits only formal approval in March, 1967.

Playgrounds and family picnic areas were mentioned in early plans for the park and were expected to be added later; however, the Outdoor Recreational Planning Committee has now approved $21,000 for their construction.

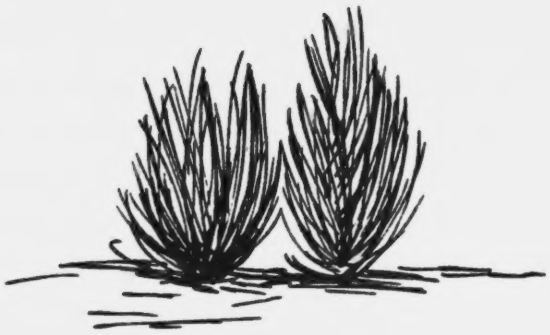
A $250,000 civic-convention-recreation center, Forest Capital Hall, is being sponsored by the county. The city has pledged to operate and maintain it. Plans are now completed, and construction should be completed by April, 1967. The building will be 148 feet wide and 120 feet long. It will be pre-engineered steel and open span across its full width. There will be one thousand, two hundred elevated permanent seats alongside a convention floor-basketball court 103 feet by 59 feet. Another 1,500 portable seats will be added for stage events. A stage will be built in with excellent staging facilities, including a stage lobby, men and women's dressing rooms, a sound and broadcast booth, storage rooms, a prompting room, and a ticket-sales room. It will have adequate toilet facilities, plus girls' and boys' locker rooms. The building will also have two concession rooms, with one designed for warming and holding catered food. It will house offices and conference rooms plus five large conference-meeting-play rooms. The building will be air-conditioned.

A large picnic building with cooking facilities has been constructed on the site. This sixty by forty foot building is used to serve the annual fish fry at the Forest Festival. It is designed to cook for and serve as many as 15,000 persons. It is available throughout the year for large group use.

Nature trails are also being planned for the park, and the Florida Forest Service has offered to create an arboretum at the site which will include plantings of almost every tree in the state. Parking areas and roads are now being built.

The estimate of the overall value of this park and adjacent developments is well over a million dollars. Thousands of persons will visit the park each year. The State Road Department's most recent highway count for the year 1965 shows an average of 7,465 vehicles pass by the site each day. Travel has increased greatly during the past year, and local authorities say that a 15 percent increase over the 1965 figure would be conservative. Thousands of persons attend the events of Florida's Forest Festival held at the park each year, and this number should increase.

This community development can be of great value to students and teachers at the Outdoor Education Center. It is anticipated that the sites will complement each other, each contributing to the interest in and attendance at the other.



Site Description

The site for the proposed Outdoor Education Center may be found by driving 4.4 miles west of Perry, Florida, on Highway 98; then southwest (left three-tenths of a mile on Highway S-356 to the north property line, and six-tenths of a mile to the southern boundry). This property is situated about 10 miles from the Gulf Coast and is owned by the Taylor County Development Authority.

The tract, a perfect rectangle 1/4 mile wide by 3/4 mile long, is diagonally halved by paved Highway S-356 (Figure 5). Total tract area is 120 acres; however, 2 acres in the southwest corner, adjoining Rocky Creek on the east, are leased by the Metcalf Crab Cannery. It is likely that this 2-acre segment will be available for educational use following the expiration of the ten-year lease in 1969.

Tract Analyses

To evaluate the property, an 11 percent timber cruise was made by line-plot method, and a timber type map was prepared (Figure 6). The data obtained provided the bases for the following tract information and suggested uses:

A. Timber types and land classifications
B. Tree and associated plant species
C. Tree diameter sizes
D. Timber volume and value
E. Tract advantages and disadvantages

the principal timber type on the property. The tract is a portion of the level, overgrown, Hampton Springs Country Club recreation site of the pre-1929

A. Timber Types and Land Classifications

Timber types or "tree communities" are individual tree species or groups of associated species normally found growing together. Open, slash-longleaf pine is depression era. The basic timber types and their acreages, along with land classifications pertinent to this tract are given in Figure 2.

B. Tree and Associated Plant Species

The dominant commercial tree species on the higher sites are slash pine and longleaf pine (Figure 4). These species provide the principal raw material for the highly developed wood-using industries that abound in the area. In the swamps and cypress pond (Figure 6), cypress and mixed hardwoods predominate. The hardwoods include live oak, water oak, willow oak, and sweet or red gum. The tract also has scattered palmetto palm, hawthorne, laurel oak, and sourwood trees. Associated shrub and vine-type plants and ground cover species include palmetto, myrtle, bayberry, blackberry, titi, honeysuckle, smilax, and cactus. This association of plants is typical of much of the forest land in the Deep South.

C. Tree Diameter Sizes

Tree diameters, one inch and larger at breast height (4.5 feet above the ground), were measured and tallied in one-inch increments. A distribution of the merchantable trees by species and diameters is given in Figure 3. The majority of trees were saplings, less than 5.0 inches in diameter (Figure 3). Generally, pine reproduction smaller than one inch was sparse. The scarcity of natural regeneration is the result of insufficient seed trees on the tract. However, isolated pockets of heavy seedling distribution can also be seen. These areas were naturally seeded during the most recent timber cutting operation.

Figure 2

Timber types and acreages of the Hampton Springs Tract.

Timber Type or Land Classification	Area (Acres)
Open Slash and Longleaf Pine	87
Swamp	10
Dense Scrub	7
Cypress Pond	6
Hampton Spring Site	4
Roads	4
All Types (Total)	118 Acres

D. Timber Volume and Value

Present merchantable pine pulpwood and saw timber volume is light and scattered throughout the entire 118 acres because of a heavy timber harvest made 6 to 8 years ago. Trees from 4 inches through 9 inches, with a minimum 4-inch top diameter, were tallied as pulpwood. Timber 10 inches and larger was tallied as saw timber, to a 6-inch top. Merchantable hardwood volume is neglible (less than 6 cords, including sawtimber trees). Hardwoods, which are unmerchantable because of their poor form or quality, are also omitted from the volume data shown in Figure 4.

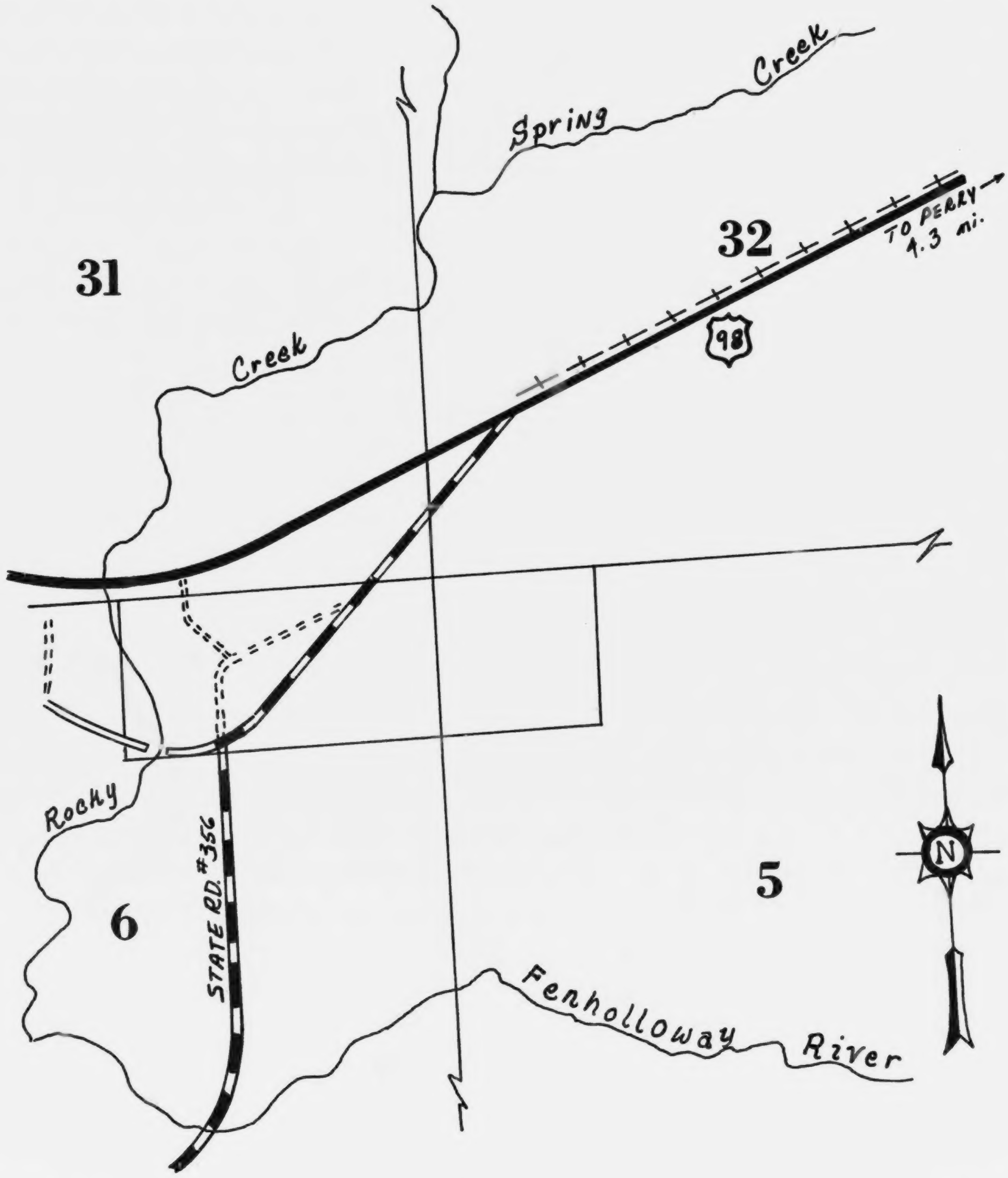
E. Tract Advantages and Disadvantages

A consideration of the strong and weak points of the Hampton Springs property reveals that the advantages outweight the liabilities, most of which can readily be eliminated.

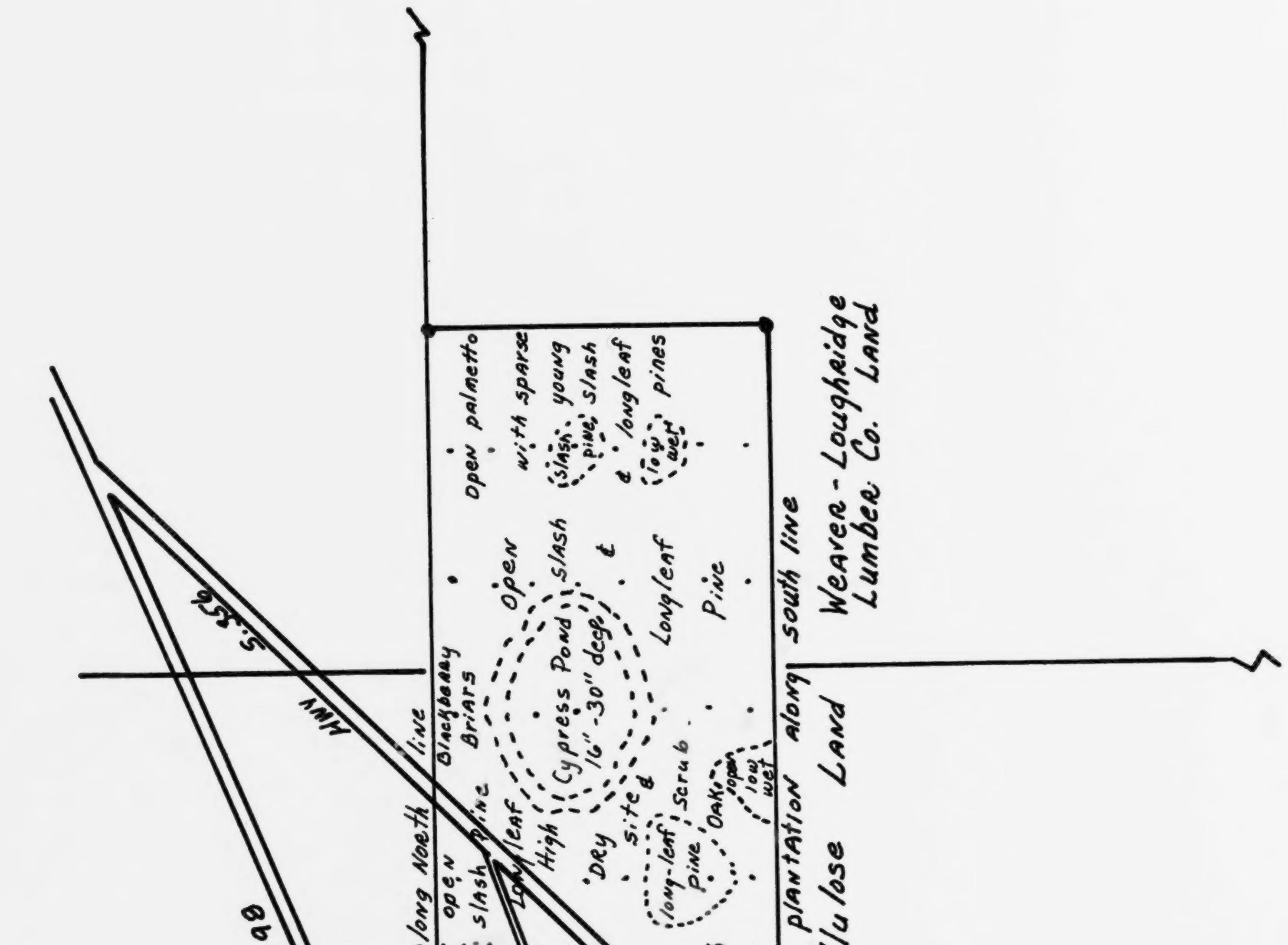
1. Advantages:
    a. Ease of accessibility over paved, all-weather roads.
    b. The size and shape of the tract provides a safe parcel, relatively simple for efficient management.
    c. Conformity of the land and timber with the overall region.
    d. The gentle topography and relative ease of walking or riding through the property to reach specific areas for instruction and observation.
    e. The heavy reliance of the area's economic well-being on its timber resources.
    f. A strong desire of the community and state leaders to develop the property for educational purposes. The Governor's Office and Florida Forest Service support the Center's establishment.
    g. The tract is adjoined, along most of its 3/4 mile south line, by the Buckeye Cellulose Corporation's timber lands. This company is one of the largest producers of dissolving pulp in the nation. The firm has an active public relations program and is strongly interested in the potentials of establishing the Resource Use Outdoor Education Center in the area. Toward this end, the company has offered the use of its technical personnel, its facilities, and its lands. In addition, other supplementary forest and wildlife areas are within close range of Hampton Springs. One area includes a 40-acre tract at the municipal airport about 2 miles southeast of Perry, Florida, on joint U.S. Highways 19 and 27. This tract, which supports a beautiful park-like stand of slash pine sawtimber, is being considered for a forest museum by the Taylor County Development Authority and the Forest Capital Center program committee. Other potential areas for educational use are the U.S. Wildlife and Game Refuge, St. Mark's Lighthouse, the State of Florida's Aucilla Game Management Area, and various state parks.
2. Disadvantages:
    a. Though typical of forestland in the region, the variety of tree species is not plentiful, nor are there many large trees on the tract.
    b. The area is infested with mosquitoes, and ticks are also in evidence, so provision should be made for their control and for the protection of students and teachers.
    c. The Hampton Springs site (probably the best location for the Center's headquarters buildings) at times is permeated by strong fish odors from the nearby crab canning plant.
    d. Local residents habitually frequent the Hampton Springs swimming pool site and may be resentful if they are excluded.
    e. Interior roads on the tract have been used as a general dumping ground.
    f. Three mobile trailer homes are located on the property, along Highway S-356 near the southeast corner. These homes are occupied by personnel from the crab cannery and must be moved without

creating undue hardships or animosity.

g. Rock debris intergrown with brush is scattered over several acres at the northeast side of the Hampton Springs site. This condition presents a hazardous walking situation.


Spring Creek
31
32
TO PERRY 1.3 mi.
98
Creek
Rocky
STATE RD. #356
6
5
N
Fenholloway River

Shape & Site of the Hampton Springs tract
scale 1" = 1/4 mile


open palmetto with sparse young slash pine; slash & longleaf pines
slash pine
low wet
open slash & Longleaf Pine
Cypress Pond 16"-30" deep
Blackberry Briars
High 'Dry site' & Scrub Oaks
low wet
long-leaf pine
open slash pine
Longleaf pine
open slash
Dense scrub (trash)
Low
DITCH
open slash pine
DITCH
Swp.
'open' slash
Swamp
Rocks
Open Area
Old well
pool
Boat slip
Palms
slash
CRAB Plant
Ditch & abandoned tram along North line
Fire line & slash pine plantation along south line
Weaver - Loughridge Lumber Co. Land
Buckeye - Cellulose Land
U.S. HWY 98
HWY S. 356
HWY S. 356
Creek
Rocky

Timber type map

Figure 3

Diameter distribution of sound trees by species.

Tree Diameter (inches)	Slash Pine and Longleaf Pine	Cypress	Sweetgum	Water, Willow and Live Oak
		(Number of trees)		
	1,656	63	-	27
	1,125	171	-	18
	1,089	63	-	54
	1,809	144	-	27
	333	81	-	-
	216	45	9	36
	90	-	-	-
	54	126	-	-
	18	-	-	-
	-	81	-	-
	9	-	-	-
	27	144	9	-
	-	-	-	-
	36	9	-	9
	-	-	-	-
	9	-	-	-

Figure 4

Volume and value of merchantable timber by timber types on the Hampton Springs tract.

Timber Types	Tree Species							
	Slash & Longleaf Pine				Cypress			
	Pulpwood 1/ (Cords)		Sawtimber 2/ (Board Feet)		Pulpwood 1/ (Cords)		Sawtimber 2/ (Board Feet)	
	Per Acre	Total	Per Acre	Total	Per Acre	Total	Per Acre	Total
Open Slash and Longleaf Pine	.586	51.0	59	4,780	--	--	--	--
Swamp	.237	2.4	626	6,260	.350	3.5	342	3,420
Dense Scrub	.172	1.2	--	--	--	--	--	--
Cypress Pond	--	--	--	--	4.032	24.2	2,855	17,130
Hampton Springs Site	.103	0.4	--	--	--	--	--	--
All Types (Total Volume)	--	55.0	--	11,040	--	27.7	--	20,550
Value by product	@ $8/cord = $440		@ $32/MBF = $353		@ $5/cord = $138		@ $32/MBF = $658	
Value by species	Pine: $793				Cypress: $796			
Total Timber Value	$1,589							

1/ 4.0" - 9.9"

2/ 10" and larger

Program

The program and the facilities for the Outdoor Education Center should be planned to serve the population of six counties listed in the project. Specifically, the program must serve the needs of teachers, students and the population in general in resource-use outdoor education. The focus will be on new and experimental instructional methods in the field of conservation. It is proposed to plan a model or demonstration for other communities interested in similar programs.

The program proposed is designed to demonstrate innovative and exemplary ideas and practices in outdoor education and resource-use education. The values of learning experiences in the outdoors have long been recognized as evidenced by the popularity of camping and the wide interest in many outdoor activities. The use of the outdoors as an educational laboratory and the emphasis on conservation and resource-use education are not new, but the need for these developments in the curriculum is urgent.

The effectiveness of direct learning experiences outside the classroom is now well documented and widely recognized, but the fact that this generation of children, youth, and adults know little, it anything, about the natural environment and their relationship to it gives added impetus to outdoor education as an integral part of the school curriculum.

A large percentage of the young people of this country are reared in a highly urbanized environment. The casual contact with nature, which the youth of the past were fortunate to have and which was taken for granted, is now no longer available for many. Because of a natural involvement of the masses of children in the public schools, the schools offer a practical medium for giving the people a knowledge and an understanding of man's environment and his place in it, and, hopefully, of educating youth to preserve and improve their environment.

Dr. Edward Crafts, Director of the Bureau of Outdoor Recreation, has said that if it were possible to educate our youth even more than our adults as to the significance of, and the opportunity for, maintaining and improving the quality of environment, it might be possible to mitigate such problems as littering, indifference, vandalism, illegal dumping, zoning, unethical speculation, and many others.

President Kennedy reminded us that the continued availability of our natural resources "must depend on our using them prudently, improving them wisely, and, where possible, restoring them promptly."

President Johnson said, "A few years ago we were greatly concerned about the Ugly American. Today we must act to prevent an Ugly America. For once the battle is lost, once our natural splendor is destroyed, it can never be recaptured. And once man can no longer walk with beauty or wonder at nature, his spirit will wither and his sustenance be wasted."

Unique Contribution of Outdoor Education to the Curriculum.

Outdoor and resource-use education as conceived here is a means of curriculum enrichment through learning experiences in and for the outdoors. The philosophy underlying the program herein proposed may be described as follows:

Outdoor Education is not a separate discipline with prescribed objectives like science and mathematics; it is simply a learning climate which offers opportunities for direct laboratory experiences in identifying and resolving real-life problems, for acquiring skills with which to enjoy a lifetime of creative living, for attaining concepts and insights about human and natural resources, and for getting us back in touch with those aspects of living where our roots were once firmly established.[1]

Some of the specific contributions of an outdoor setting to learning and to the enrichment of the curriculum are:

A. Increases the power of observation.
B. Stimulates interest and improves the quality of experience.
C. Provides materials for learning.
D. Provides opportunities to acquire outdoor skills.
E. Extends the classroom beyond the four walls.
F. Offers opportunities for exploration and research.
G. Provides new areas for verbalizing and communication.
H. Helps supply knowledge and adds mastery.
I. Broadens scope of teaching ability and knowledge of teacher.

Principles and Basic Objectives

A. Maximum use should be made of the natural environment and the facilities, yet preserve the integrity of the land and natural resources.

B. The learning experiences should help in the understanding and appreciation of the natural resources of the area and their contributions to the well-being of people.

C. The program should extend and supplement the classroom.

D. Through action research the best instructional practices and learning materials should be used in order to provide effective educational experiences in outdoor and resource-use education for the area.

E. The program and materials at the Center should provide an excellent setting for in-service education of teachers and in acquiring effective methods of instruction.

Content and Structuring of Program

The program for the Outdoor Education Center has two divisions: (A) Program for schools, including community service and continuing education; and (B) teacher education.

A, Program for Schools, Community Service and Continuing Education

This phase of the program includes a range of educational activities from pre-school education through the community college. The land and facilities will serve as a learning center to extend and enrich the offerings of the schools in the region, with particular reference to outdoor and resource-use education. The program patterns will include the following:

1. Outdoor laboratories, which may be used by all segments of the curriculum for field experiences, exploration, and research. The facilities and instructional devices will include:

   a. A system of nature trails
   b. Interpretive center
   c. Library and media center
   d. Outdoor skills and sports area
   e. Craft center
   f. Conservation plots
   g. Laboratories and workrooms for special interests and study, such as outdoor photography, science, and others.

2. Outdoor schools, whereby classrooms and special interest groups may have a sustained experience in a group camp at the Center (several days or a school week). This program is comparable in type to those conducted by many other school districts throughout the United States.

3. Community Service and Continuing Education, for which the program of the center makes provision to serve the educational needs of the larger community and for the individual communities in the school districts. The program is designed for all age groups and includes:

   a. Nature center for observation and study
   b. Conference center for continuing education
   c. A center for demonstrations and clincs of various ki[illegible] of outdoor activities and skills
   d. An observation center to see an educational program for children and youth in action.

B. Teacher Education

Education in the outdoors, with reference to teacher education, is well described by Campbell Loughmiller in Wilderness Road. "Educationally, the program is 'life wide.' Academically, it is an experience curriculum which includes the learning one gets in the classroom and more."

1. Unique Function of Outdoor Laboratory

An outdoor laboratory has a unique function for teacher education. The natural environment has a major influence on the quality of learning experiences because:

a. The tools of learning in the laboratory, i.e., living things, are in their natural context.

b. All the senses may be employed in the learning process and in sharpening the perceptive powers of the learner.

c. It is more conducive to exploration and the problem-solving approach to learning.

d. There are more opportunities for the teacher and children to become co-performers in solving problems.

The realness of the outdoor classroom, with little need for artificiality and abstractions, makes it more possible to guide many learning experiences in accordance with the best that is known about the nature of learning. Furthermore, in the formal and out-of-classroom situation, both the teacher and the student can behave as normal human beings in real life situations. The whole child learns in the whole situation, making it unnecessary to "pigeon hole" learning or to take the physical world apart.

A laboratory center makes it possible to combine theory and practice, subject matter and behavior, and teaching and learning. Such a center or laboratory as herein proposed combines the best information by way of books, instructional materials, and media resources with a learning situation involving children and a teaching clinic. Thus the laboratory center provides rich resources, by way of leadership and materials, and yet makes the teacher the central figure in the learning situation with children.

An added value in the outdoor laboratory is to bring into focus the best techniques in the use of resources, teachers, and specialists with a strengthening of the role of each.

2. Implications of Societal Factors

There are several societal factors having important implications for teacher education through use of a laboratory center:

a. The impact of the rapid population increase on resource use poses problems requiring immediate action. Extensive use of land and competition for space by highways, real estate developments, and industry compacts recreational space and habitat. The situation places heavy responsibility on society to educate people for the wise use of resources on a renewable basis. It can be expected that there will be a continuous acceleration in technology, which, in turn, will create a greater need for use of natural resources by human beings.

b. Research and technology have made much of the content related to the management of resources obsolete. Continuous in-service education and retraining, part of which can be done more effectively in a laboratory center, will become more and more necessary.

c. The nature of man's work has changed, making recreation an essential and integral part of living. Millions of Americans have turned to the outdoors, making it necessary to educate for the wise use of outdoor recreation resources.

d. The population shift from rural to urban living finds approximately three-fourths of the population living in cities. Outdoor and resource-use education are essential and urgent in effecting harmony between man and the biotic community.

An experience curriculum, part of which can be provided through outdoor settings, must be provided if man's behavior concerning his relationship to his natural environment is to be changed.

Modern means of transportation make it possible for millions to invade the open spaces throughout the nation. To date, people are trying to use our resources as was done in a rural society. We must limit the use of many resources, as is being done with wild game, and, through education, find more values through deepened perceptions and satisfying skills and interests.

3. Types of Teacher Education through the Center

   a. Pre-service education

      The first phase of pre-service education would include:

      (1) Field experiences with the Center staff and teachers from the participating schools at the laboratory center.

      (2) Seminars and discussions conducted by teachers.

      The second phase would be:

      (1) Courses offering credit, on the undergraduate level, available to teachers; experiences would be with the center staff and teachers at the laboratory, but under the direction of university personnel.

      The third phase would be:

      (1) Intern experiences provided by colleges and universities in cooperation with the Center staff for seminars and discussions. This body of experiences would make it possible for the intern to work in his chosen discipline in the field of education, assisted by the Center staff.

   b. Other types of pre-service education

      (1) Vistations by classes in appropriate subject matter areas, child growth and development, curriculum, and methods.

      (2) Required field experiences in certain curricula and courses, part of which could be at the Laboratory Center and in the schools participating in the Center program.

      (3) Student teaching experience, in part, at the Center and in participating schools. In some instances a chosen group of prospective teachers could be assigned to the Center and to the participating schools for a term or semester of student teaching.

      (4) An experimental program of study and apprenticeship developed by one or more colleges and universities. Such a program might be designed for prospective elementary teachers and selected secondary education majors with special interests in outdoor education. The plan would make it possible for a large part of the four-year-teacher preparation program to be in selected school systems using the Center and for the prospective teacher to be assigned to master teachers and be supervised by a specialist in teacher education.

      For this plan the college student would reside in the community where the school is located and would participate in community activities, in addition to working with the master teacher in the classroom and at the Center. Partial salary, proportionate to the progression during the four year period, would be shared by the college and the local school district.

The laboratory center, as proposed, offers unusual opportunities for innovative practices in pre-service education, whereby prospective teachers may observe and work with children in a natural and informal setting. It is anticipated that working relationships can be established with universities and colleges for a selected number of trainees to work, to live, and to learn in a laboratory experience.

c. Graduate education

The Center would offer unique opportunities for graduate education at several levels--master's degree, specialist degree, and doctoral degree. It is possible now in many institutions to have graduate studies tailored to the needs and interests of the student. The increased number of stipends for research, graduate assistants, internships, and field studies would make it possible to prepare teachers, administrators, and specialists whose graduate program would be enriched through the resource-use outdoor education center. Several patterns are suggested:

(1) Interns, assigned to the Center or to participating school systems, who would serve as: teachers; naturalists; physical education and recreation personnel; specialists in subject matter areas, in conservation, in resource-use, in media use, and others. Such internships, with appropriate stipends, could be for varying periods of time at the Center or in the participating schools depending upon the student's college curriculum.

(2) Research by graduate students on topics and problems related to the programs at the Center.

(3) Graduate workshops and seminars conducted at the Center.

d. In-service education

The in-service experiences to be provided by the Center must be contrived to affect the behavior of teachers with respect to outdoor and resource-use education. And, most importantly, the teachers in the participating schools, whose classrooms will have experiences in the laboratory, must be prepared to feel at ease in teaching in outdoor settings and must become aware of learning potentials in the laboratory center. There should be a maximun of participation for acquiring good teaching methods, with opportunities to work with children whenever possible.

(1) Pre-laboratory planning and participation in learning activities in the outdoor area can be accomplished through workshops and conferences at the laboratory center for local, regional, and state teacher groups. Teachers may become familiar with the learning resources through field experiences, acquaintance with the library resources, and in planning activities with the Center staff. A collection of the best materials pertinent to the immediate physical environment, which will include books, graphic materials, exhibits, and dioramas, may be studied.

(2) Advanced planning with the schools through visitations by the Center staff, student and teacher planning, and special projects in preparation for the program at the Center become the basis for the projected program to follow. All activities unique to the outdoor setting are to be considered, such as overnight trips,

pageants, menu planning, banking, procedures for the store and post-office, mapping the areas, and others.

Interdisciplinary Nature of Resource-Use

Resource use, conservation, and outdoor education are all interdisciplinary in nature. They cannot be regarded as content or subject matter fields in themselves and essentially are an interpretation of several subjects and disciplines through the outdoors and the wise use of natural resources. Professional preparation, therefore, cannot be provided through single departments or colleges, but must be the product of interdepartmental and interagency cooperation. Consequently, a laboratory center helps bring the subject matter of several disciplines into focus, both in the learning and teaching processes, in a setting free from "institutional walls and classroom props."

One of the unique contributions of an outdoor setting is the lack of traditions inherent in departmental organizations, which makes coordination much easier. The interdisciplinary approach, therefore, facilitates the maximum use of the resources of subject fields, departments, and agencies and avoids duplication.

Departments can serve each other through course and other learning activities with the laboratory center serving as a culminating experience in applying content from appropriate disciplines to effective teaching methods. The Center will help close the usual gap between preparation and practice and between content and methodology.

Prospective teachers with many interests and backgrounds may get preparation in resource-use and outdoor education through the discipline or department of their own choice.

Program Structure for Children's Experiences

It would seem that the most effective way of using instructional time in resource-use would be to develop a program that would be integrated with the on-going school program. The program is best accommodated when it is broken down into three major areas of time use.

A. Pre-laboratory experience. The counselor, by appointment and upon the request of the classroom teacher, visits the school three to four weeks prior to the laboratory experience. The counselor, the teacher, and the pupils engage jointly in planning the laboratory experience. Work assignments are made in the areas of reading, mathematics, spelling, geography, natural science, social studies, and hygiene and physical education as they might contribute to an enriched laboratory experience. General orientation and listings of equipment and materials needed for special interest projects and group projects at the laboratory center are done during this time period.

B. Laboratory experience. No arbitrary, rigid, scheduled class periods are envisioned for children's activities at the laboratory center. Because the living curriculum is constantly changing, adjustments become necessary and they should be made jointly by the teacher and pupils. Whether the work is to be done indoors or outdoors, the size of a group involved in a study, the time of day, the season of the year, and changes in the weather are factors which could bring about adjustments.

The laboratory experience begins, in reality, with departure from home base. Loading equipment, use of maps for location of the laboratory site, location of areas of exploration enroute, and stops enroute for setting the tone of the on-site experience can be an invaluable part of the school camp or laboratory program.

When the on-site program commences, the child's learning time or experience time seems to fall logically into four divisions. These divisions are not unlike the segments into which the time of all individuals falls; they are:

1. Work experience. Personal work, community work, and vocational work make up this category. Personal work would be the kinds of things that individuals do to care for their personal belongings and the bunk area; to share in the food service operation; to care for their project equipment; and to care for their own bodies.

Community work could encompass a host of activities that are often considered as chores, such as policing the grounds, cabin upkeep, upkeep of the biology or photography labs, grounds beautification, and others. It may be difficult, at times, to draw any clear lines between any two or three of the total of four time segments. An activity could be a work experience and social living and healthful living at the same time. Such is community work; the things suggested can be social living and work experiences at the same time.

Vocational responsibilities may range from operation of a small camp store to acting as postmaster, serving as a library assistant or librarian to acting as camp banker, and keeping the weather station to making trails. The work experiences are social living, but the emphasis should be on development of vocational aptitudes and skills.

2. Social living. In a camping situation each person has a responsibility for each other person and to the group as a whole, which is really the democratic way of life. The situation is ideal for demonstrating democracy in action, as well as for contributing to the emotional, social, and physical well-being of the individual because each contribution is real, direct, and immediate.

There are some practices to be desired for comfortable and harmonious living in the outdoors, and there are certain group living skills, qabits, and attitudes desired for peace and harmony.

Some social and democratic practices fostered by and the concern of the laboratory or camping experience are:

a. Responsibility for self--self-achievement, self-determinination, self-reliance
b. Responsibility to others--sharing, serving, leading, following, personal property rights
c. Group determination--consideration of rules, of minority and majority, and respect for public property
d. Responsibility for living areas--sanitation and cleanliness, beauty, and repair
e. Responsibility for recreation areas--beauty, cleanliness, orderliness, repair
f. Responsibility for work areas--safety, cleanliness, equipment upkeep, proper use

3. Healthful living. Direct experiences that result in safe and healthful living knowledge, habits, and attitudes include such factors as blisters, sunburns, water safety, proper rest, good food, cleanliness, and others. In this outdoor setting the teacher has the opportunity to direct the student's total living and learning to a degree not possible in the classroom.

Experiences offering opportunities for application of healthful living practices range from one as simple as a hike to trips of longer duration away from the camp. Each requires preparation in areas of health and safety. Some such experiences include:

a. Hikes
b. Field trips
c. Picnics and cookouts
d. Overnights, or longer, in cabins
e. Overnights, or longer, in the woods (tents, etc.)
f. Swimming
g. Boating and skiing
h. Hunting and fishing
i. Any combination with any mode of travel

Certain health practices that should be included in the planning for a successful and happy stay in the outdoors and that should be followed are:

a. Physical examination
b. Good nutrition and well-planned meals
c. Proper rest and relaxation
d. Proper amounts of exercise
e. Health habits - bathing, clean clothes, tooth brushing, proper elimination
f. Clean living quarters
g. Proper clothing for protection from weather, insects, and animals
h. Proper shelter in camp and away from the camp
i. Sanitation in food preparation,

pure water, proper garbage and sewage disposal
j. General practice of first aid
k. General practice of all health and safety knowledge

Specific safety and first aid knowledges that should be practiced, as required for each kind of activity, to insure well-being of students are:

a. Safety
  (1) Hiking rules
  (2) School bus and other travel rules
  (3) Use of knife and ax
  (4) Use of fire
  (5) Avoidance of dangerous plants and animals
  (6) Rules for swimming, boating, skiing; skills and habits; rescue, self-rescue
  (7) Use of firearms
  (8) Use of fishing equipment
  (9) Rules for survival, if lost

b. First Aid -
  (1) Artificial respiration
  (2) Snakebite treatment
  (3) Cuts and excessive bleeding
  (4) Burns and other blisters
  (5) Insect bites
  (6) Poisonous plants
  (7) Sprains
  (8) Sunburn
  (9) Heat stroke and heat exhaustion
  (10) General first aid rules

There are certain medical practices, knowledges, and behaviors necessary in a camp or outing situation just as they are necessary at school or in the home. All teachers and students should be aware of these.

(1) Necessity for physical examination
(2) Role of nurse in camp or school
(3) Role of first aides in camp or school
(4) Immediate attention to illness (contagion)
(5) Immediate attention to injury (infection)
(6) Danger of self-medication

Learning can be recognized or measured only when a change in behavior occurs. If each child who participates in the outdoor education program becomes a little more throughtful and careful and is safer and healthier because of his experience, then the program has been successful.

4. Recreational living. This category or segment of time may or may not cut across the three preceding ones. Each student or individual should be encouraged to engage in individual and group activities, and these activities may be music, storytelling, crafts and crafts demonstrations, cookouts, overnight camp-outs, drama and pantomine, games, stalking, animal calling, bird watching, water sports, photography, and many others.

In the planning procedure, teachers and children and resource people make selections of recreational activities in terms of the season, the time of day, the size of the group, and the leading-on characteristics vested in the activities.

The out-of-doors provides time for learning, time for play, time for work, time for leisure, and time for close association with nature's slow pattern of renewal and stability. These things can bring to a person the realization that much in life cannot and need not be hurried. When students and teachers and parents are able to get "in tune" with the steady march of the seasons and the fruitful earth, it is believed that good learning of a fundamental nature will take place.

Permanence and pattern are important to children and to their emotional development. How better can they be familiar with the sureness of life and growth than through experiencing it in the out-of-doors?

Opportunity for quiet wonderment and peaceful meditation is absent from the lives of many. Outdoor education can restore it and can reduce pressures placed on students today. The outdoor experience has been planned to bring this about.

The laboratory experience is concluded by the return trip to the setting-out place. The trip should be planned for appropriate stopovers at certain spots to add strength of continuity to the on-site laboratory experience so that there would be a transition and carry-over to the school ground, even, or to areas nearby.

The post-laboratory experience would reinforce the laboratory experience from time to time as it relates to the on-going school instructional program.

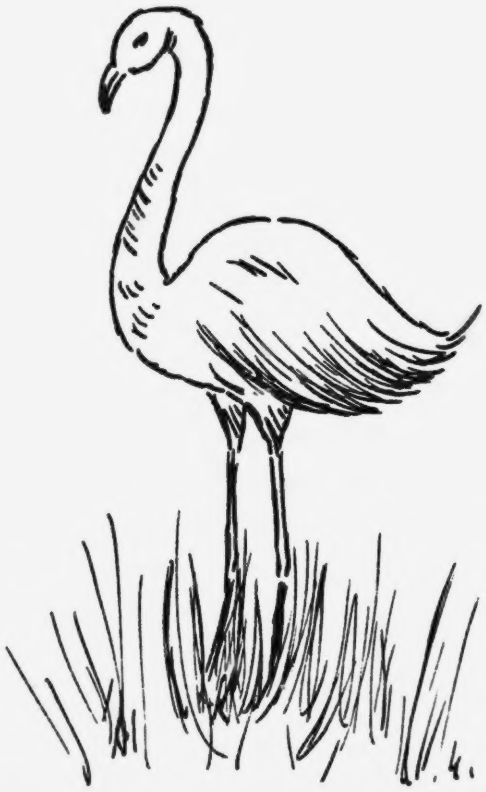
C. Post-laboratory experience. The phase for reporting and evaluation, involving the teacher, the pupil, the counselor, and the parents, is as valuable as the two preceding phases of time use. The counselor makes use of the evaluations in developing and planning for the next group to come in.

In the beginning it is suggested that the school children involved in the program be confined to those in the sixth grade. This grade is used as an example, only, and teachers in other grades may make adaptations to fit their needs, using the basic principles and purposes underlying successful teaching of sixth graders in resource-use in an outdoor environment.

It is anticipated, based on records provided, that approximately 1700 children in the six-county area involved would require 17 laboratory periods of 34 weeks to accommodate all the sixth graders and their teachers. The total number of teachers to accompany the sixth graders will be 68. In addition 170 pre-service trainees, 85 interns, and 1200 in-service teachers for a 12-week period will be served.

Students and teachers in non-profit private schools will receive the same opportunities and benefits of instruction in the proposed center as those from public schools or any other groups.

The program in its entirety is conceived as a continuing and an interacting in relation to the community. The teacher, upon return to the home community, should be involved in interpreting the laboratory experiences, teacher and student, to small groups of teachers and should indicate possible applications of the experience to the school grounds or to adjacent areas. The teacher could report to the PTA, the garden club, service clubs, and other groups, with the use of colored slides and other materials produced at the Center. The audio-visual materials could best be developed by the teacher and the students in cooperation with the Center staff in order to interpret the work of the laboratory to the people. The teacher could work in cooperation with the home in developing backyard demonstrations of resource-use such as bird-feeding stations, gardens, herb gardents, tree planting, and the like.



Program Description

One of the major purposes of such a Center is to portray and interpret plant and animal life, geology, and other natural features and processes that are found in the outdoor environment. It can no longer be taken for granted that people have the necessary perceptions to understand and appreciate the wonders of nature and their relationships to the physical environment. The program should help the users to attain the highest values which the outdoor areas have to offer.

The basic purposes underlying nature activities is the maximum and unique use of the natural environment which will still maintain the integrity of the area. Nature activities constitute a media through which people may appreciate and understand the physical environment and through which there may ba an expression of interests and talents. Values may be obtained through the mental and physical processes, through the appreciation arts, or through manipulative skills. These are several kinds of nature activities, briefly described, and some methods of programming:

Astronomy

The recent discoveries about space have created more public interest in astronomy. Opportunities to observe and study the heavens at night should be provided. Lectures and discussions by competent leaders could be scheduled throughout the year. Some of the new portable equipment makes it easy to schedule astronomy sessions.

Dioramas

All types and sizes of dioramas and displays located in buildings and in appropriate outdoor settings should be used for interpretation and for calling attention to features in the area. The dioramas become living, talking symbols of the web of life of the age portrayed. The setting up of suitable space and the planning of such dioramas with ecological implications require imagination, ingenuity, and know-how.

Husbandry

There is an increasing need for people to have opportunities to work on the soil--plant, cultivate, and harvest. Whereas such activities would have been considered necessary labor in earlier times, they now constitute an important kind of individual recreation and are related to the development of attitudes on conservation. The Center should provide a large number of opportunities for people-- perhaps for the first time in their experience-- to do things on the land. Some of the activities in which visitors might engage include:

1. Planting, cultivating, and harvesting garden crops, including herb gardens.
2. Horticulture-planting, budding, pruning, and harvesting.
3. Landscaping.
4. Soil erosion control.
5. Forest management.

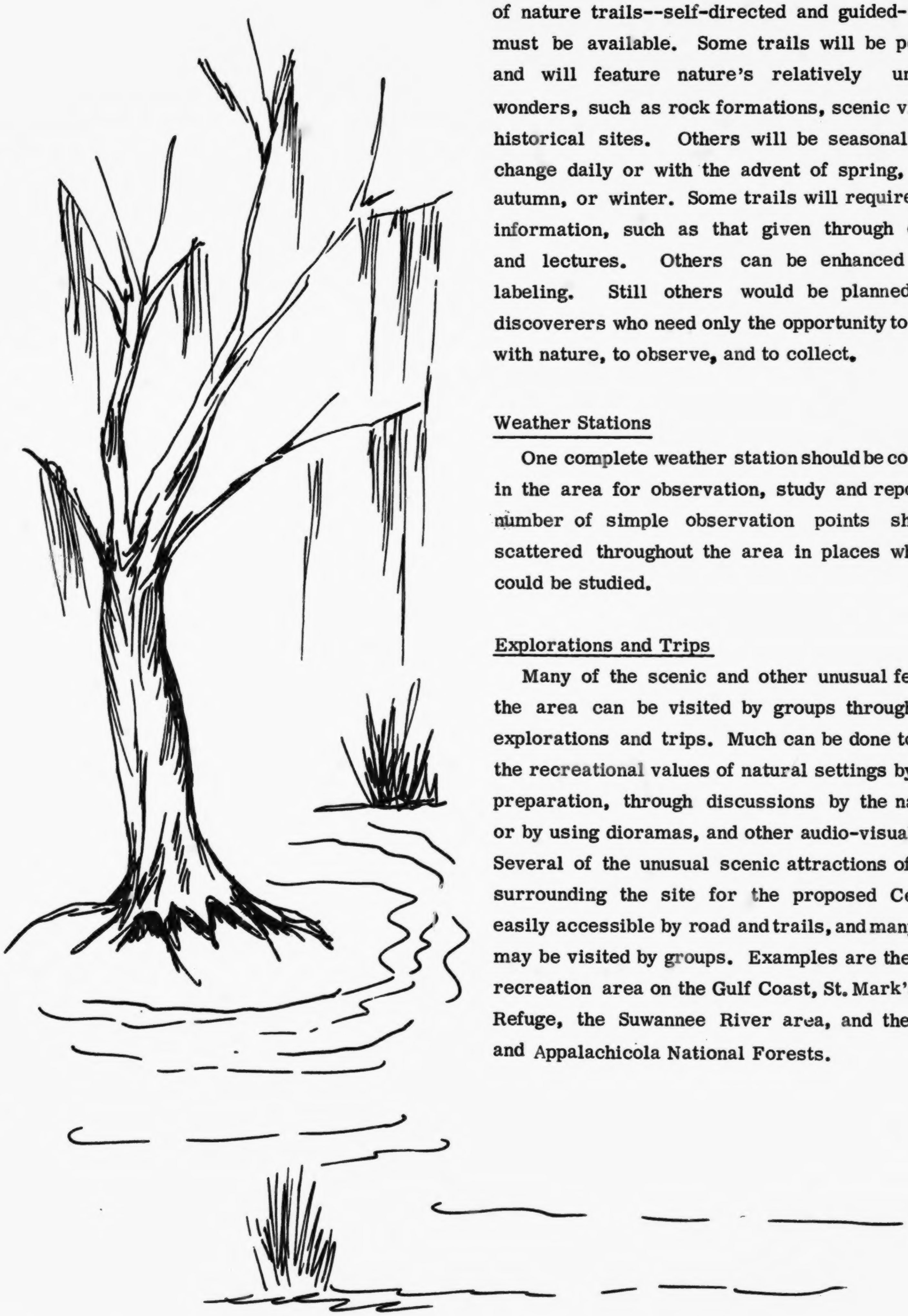
Nature Pastimes

Rural pastimes which were favorite activities of the past would be of interest today if there were opportunities to experience them. Many of these simple, but adventuresome, pursuits could be introduced at the Center. Through good land management and planting, some of the following kinds of outdoor recreation could be made possible:

1. Picking wild berries
2. Gathering nuts.
3. Hunting mushrooms.
4. Searching for herbs.
5. Picking wild flowers.

Nature Trails

Trails constitute a major phase of nature-centered activities. Much skill and imagination should be used in the construction and layout of trails so that the beginner or the specialist may profit from his



experience in observing and studying the natural phenomena of the area. There are two general types of nature trails--self-directed and guided--and both must be available. Some trails will be permanent and will feature nature's relatively unchanging wonders, such as rock formations, scenic views, and historical sites. Others will be seasonal and will change daily or with the advent of spring, summer, autumn, or winter. Some trails will require advance information, such as that given through dioramas and lectures. Others can be enhanced by good labeling. Still others would be planned for the discoverers who need only the opportunity to converse with nature, to observe, and to collect.

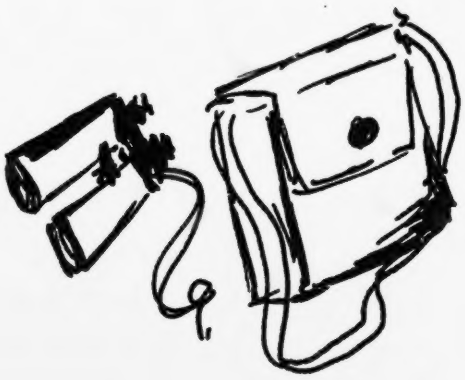
Weather Stations

One complete weather station should be constructed in the area for observation, study and reporting. A number of simple observation points should be scattered throughout the area in places where they could be studied.

Explorations and Trips

Many of the scenic and other unusual features of the area can be visited by groups through planned explorations and trips. Much can be done to enhance the recreational values of natural settings by advance preparation, through discussions by the naturalist, or by using dioramas, and other audio-visual devices. Several of the unusual scenic attractions of the area surrounding the site for the proposed Center are easily accessible by road and trails, and many of these may be visited by groups. Examples are the Buckeye recreation area on the Gulf Coast, St. Mark's Wildlife Refuge, the Suwannee River area, and the Osceola and Appalachicola National Forests.

How to lead a field trip



On a purposeful field trip all the features about the surrounding air, ground, and biota, as far as the horizon, provide a never-ending wealth of natural history information. Sometimes that information is obvious, sometimes it is hidden by more dramatic objects or events, and sometimes a combination of a little experience, a little imagination, and a little intuition yields original information which is the most rewarding of all.

How then does one lead a field trip, escort a tour, or otherwise show people what is to be seen? Interests and objectives usually vary so greatly among "field trippers" that the leader cannot, of course, be an expert in every field; neither can he be a walking encyclopedia, an historical authority, a living almanac of facts, a complete medical corpsman, and a public relations man all at one time--however, good ones usually try and the best occasionally succeed. Whatever the case, a very good leader somehow manages to satisfy both the curiosity and needs of most of his followers. If the leader does not have the answers, at least he knows how to get them.

To begin any kind of a field trip the leader should expect a certain amount of apprehension from a few participants. Usually the associated problems are of minor consequence and may be resolved by full explanations of what lies ahead. WHO? WHAT? WHERE? WHEN? WHY? HOW? More specifically, who will be on the trip; where will the trip go; what will be seen; why is the objective worth seeing; how long will it take; and when will we return? Immediately after such an introduction the leader may expect a deluge of questions: do we carry a lunch; will boots be necessary; are there snakes; wear dresses or slacks; how far; what direction; should I take notes; will there be a place to buy aspirin; do you know the shortcut between...; and the inevitable, I've been there before, will we see...? These are examples of a few questions that may be answered in the early stages of pre-planning. Nevertheless, underlying all preliminary questions and planning is another fundamental apprehension of nearly everyone: what will be done if it rains?

An unusually good leader will actually begin the field trip the moment that question arises; if no one asks, the question is worth anticipating. What may be important at the moment is not WHAT will the weather be when the outing begins, but WHY the existing weather and HOW long may conditions prevail. The prevailing weather may be understood by reference to weather maps in much the same way a location may be understood with reference to a road map. Most newspapers carry daily weather maps; furthermore, weather reports are so common on television that a combination of references is readily available. Guides, leaders, and escorts should be aware of weather and climatic conditions; they should know how to analyze maps or reports; and they should know what information to pass to participants, or how to advise participants to understand wheather characteristics. On trips of several days' duration, the guide has the responsibility of keeping abreast, if possible, of weather conditions. Again, and at the risk of repetition, knowledge about HOW and WHY the prevailing conditions is the best preparation for understanding weather in the near future.

During the pre-planning stages each participant may be directed to acquire a particular kind of information either before or during the trip; that is, a library investigation of the geology, biota, or some historical point, beforehand or perhaps a record of soil temperatures, for example, along the way. When each participant has been assigned a contribution of some sort, then the leader attempts to weave each part into meaningful information.

Perhaps it is axiomatic to suggest that people are most comfortable in familiar surroundings; yet people generally are curious in one way or another about strange areas, events, and things. More often than not, knowledge comes from a comparison of the familiar experiences with the new and unknown. Since progress of all kinds is based upon experience, a leader is obliged to expose the new opportunities and events in terms of previous experiences if he is to carry to the fullest extent the complete confidence and attention of the participants. Therefore, the undercurrent in every field trip, as obvious as the case may be or as subtle as may be possible, should be a stream of comparisons--the old with the new, one kind with another series, and ultimately one pattern with another.

The matter of comparisons raises interesting points about the ability of various people to comprehend. Some people contrast only simple things, such as one shape differing with another, whereas others have the ability to envision the integration of many configurations simultaneously by contrasting one complex situation with another. In either case the leader must be able to sense immediately the level of individual comprehension and to adjust accordingly his descriptions and characterizations of the events at the moment. A simple "rule thumb" at the outset of any field trip with adults having unknown and probably diversified backgrounds is to assume no more than 12th-grade knowledge and experiences and build accordingly upon each event. Even if a leader learns that he is faced with more highly educated people, he will soon find that communications at the 12th-grade level of general knowledge, or at most the junior-college level, are most effective. Persons having more advanced education usually have specialties with particular variations of cultural preparation and the levels of communication are adjusted accordingly. A group leader therefore starts by disseminating information that has common meaning to all in the party whether children or adults; these common grounds are used to orient the party to existing conditions, and existing conditions form the basis upon which the activities of the group will be planned and carried on.

People usually like to know exactly where they are--physically, geographically, biologically, agriculturally, historically, sociologically, and perhaps politically--only to mention some of the most obvious points within the environs. Two approaches are available--the "big picture' approach that stresses perspective in differences between one objective and another and the detailed approach which emphasizes insight. A little of each is desirable, but the bulk of information should be presented in such a way that everyone on the field trip has the opportunity to see and understand the environs with perspective based upon insight.

All field trips are required to have a destination. That place or occasion should come at about three-quarters of the distance or total time involved. Although the destination may be a popular place of one sort or another, its purpose is best fulfilled by bringing together all events associated with the field trip. The leader must always plan the trip carefully with the destination in mind and save certain kinds of information for synthesis at that place.

Up to this point little has been mentioned about activities on the trip itself. With pre-planning, orientation, and background information dispensed, the group is ready to move into the field toward the destination.

Heat measurements may be made in air, soil, and waters along the way for comparisons with those from weather bureau records at some particular site.

An altimeter from military surplus is a useful tool to carry for comparisons of heat variations with altitude. Those instruments when treated properly will indicate altitudinal differences of as little as 20 to 40 feet.

Along the way road cuts are observed for the configurations of rock strata. Variations in plant growth on different strata may be observed. Soil profiles in road cuts are easily identified.

Soil moisture measurements from road fills may be taken along north-facing sides of the fills and from the south-facing sides. Plants from each side of the road may be collected and compared for morphological variations relative to differences in heat that are known to be related to interception of radiant energy from the sun.

If the sky remains clear all day, that means something about weather conditions. On the other hand, if high cirrus clouds are seen, that indicates something else. Clouds and wind directions change during the course of the field trip; all changes have significance. If those significances are not understood, that in itself becomes meaningful information worthy of additional investigation.

Changes in agricultural practicies and customs are usually directly related to geological features, soil quality, available soil water, motivation of the people, marketing outlets, demand for goods, and the current prices paid. Nowadays, however, federal price supports, for either encouraging production of some crops or curtailing production of others, occasionally govern land use patterns in certain areas. These areas can usually be detected with both a keen eye and a general knowledge of what the government supports in that area.

Industry, commerce, and recreation occasionally govern land use patterns as well as crops and natural vegetation. Abandoned railroad tracks often have a highly diversified flora with unusual plants likely from numerous places. Pulp wood producers control vegetation over hundreds of square miles. Artificial lakes may raise the ground water table of wells along tributary streams. On the other hand, detergents may be detectable along waterways as may corrosion from exhust fumes or oil deposits from diesel engines. Uses of pesticides become obvious in the odors around orchards and fields or along high-voltage power lines.

The list of ideas is endless. Usually more information is available between stops than at the stops per se, chiefly because natural history features continuous change with distances. Along any planned route the only limit to points of interest is that limited by the intuition, imagination, and industry of the leader. The entire trip hinges upon how effectively the leader can call upon his own resources as well as those of his participants. Each leader is on his own. The accompanying list of general subjects gives some idea about the kind of topics that are suitable for natural history investigations. Usually some kind of measurements or data may be collected about any one or more of them.

Finally, the trip has arrived at the prescribed destination. After a brief orientation again, and a little time for looking around, the group is gathered for an analysis of events, interpretation of observations, and some results and conclusions are eventually formulated. This is an important session for the exchange and interchange of experiences. Reports are given, data are presented, hypotheses are set up, and everlasting ideas should take form. Again, perspective based upon insight leads to understanding. One project remains--an individual analysis by each student of his accomplishments and his results: that project is best done in the form of a brief written report about the trip.

If a student understands during the discussions at the destination that a brief report will be expected, then he is likely to hunt for bits of information that have personal values. Furthermore, on the return journey he has the opportunity to review the observations, rework the information, and enhance his ideas. Therefore, the return journey should come at a time when fatigue and the monotony of travel have not yet set in.

When the group has returned to the starting point, the trip and journey have ended, preferably for the entire occasion. Each trip should be a complete unit without undue continuations and extenuating characteristics. Sometimes reviews and recalls may be desirable, but generally the trip just ended is only the foundation for the next one.

Then an entirely new mission gets underway for similar, but more advanced and perhaps sophisticated, purposes.

Natural History Features

Physical

Climate
Bioclimate
Weather
Geography
Physiography
Geomorphology
Bedrock Geology
Soils
Mineral Resources

Dunes
Lakes & Rivers
Ground Water
Caves and Mines

Cultural

Cultural History of Indians
Socio-economic History of Early Settlers
Evidences of Military History
Changing Patterns in Agriculture
Patterns in Urban Development
State Parks and National Forest

Plants

Higher Plants
Trees and Forests
Grasslands
Communities
Plant Diseases
Lower Green Land Plants
Fleshy Fungi
Algae
Ferns
Farms and Gardens

Animals

Mammals
Birds
Amphibians and Reptiles
Fishes
Insect Pests
Animal Parasites
Free-living Invertebrates

KEY WORDS: Comparisons...changes...differences... things...patterns

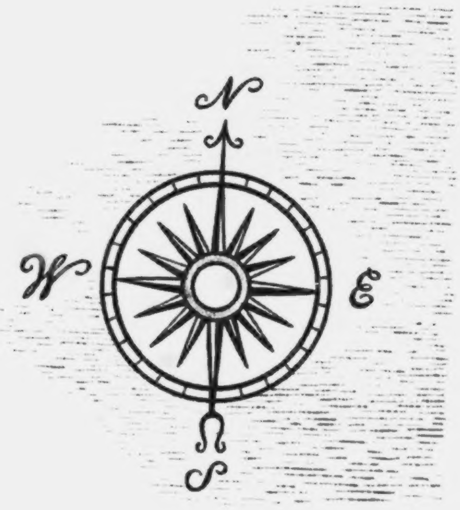
KEY IDEAS: then and now...this and that...old with new...there and here

Stimulants: where, what, when, why, how, who.

Methods: scope versus details... perspective versus insight...lots of information.

Purposes: comprehension and understanding.

Historical Events



1. The Panfilo de Narvaez expedition passed through in 1525.

2. The DeSoto expedition passed through in 1539-40.

3. A string of 23 Spanish missions established across northern Florida, 19 of them in the Middle Florida area, 12 in the six-county area.

4. A trail connecting St. Augustine with Pensacola traversed Middle Florida along the line of the missions. 17th Century.

5. Much pirate activity along Florida coasts. Blackbeard, the famous pirate, reported to have used the mouth of the Suwannee River as a place of refuge upon various occasions. (Undocumented)

6. Spanish missions destroyed in a raid by Governor Moore of South Carolina, 1704.

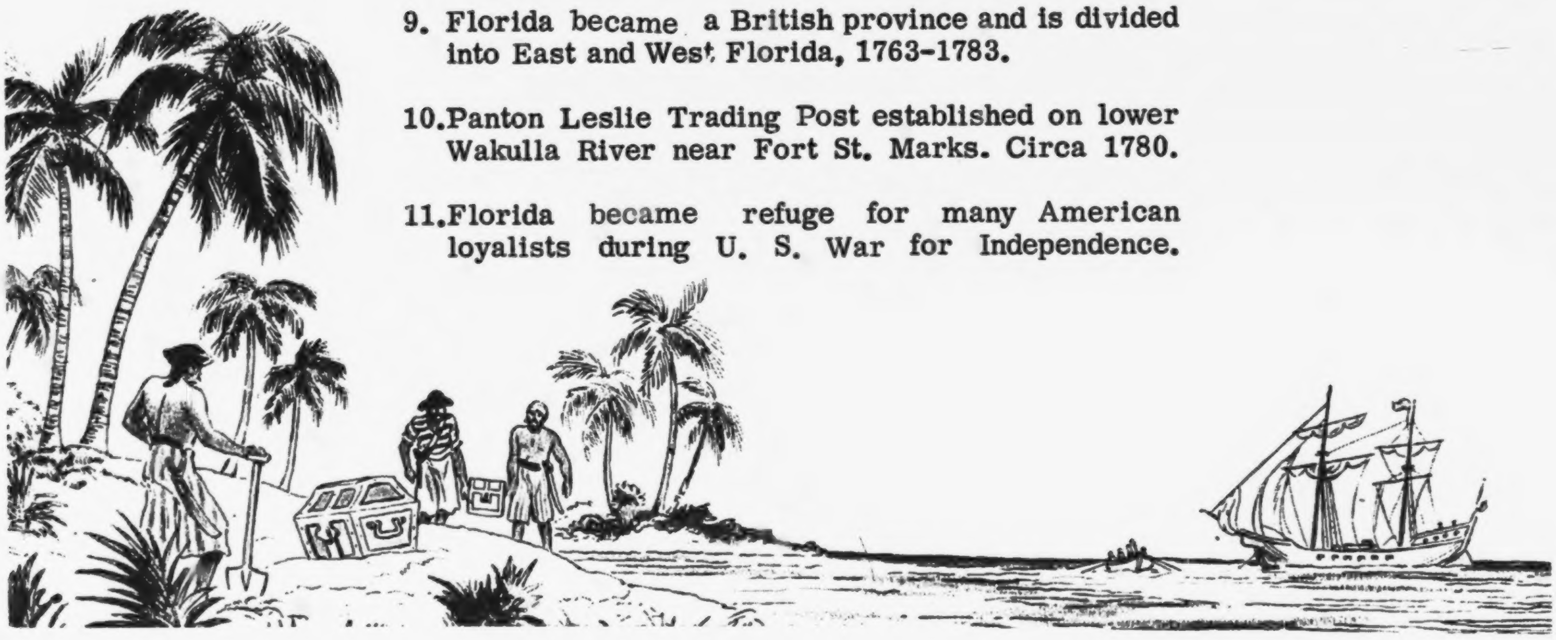
7. Fort St. Mark's constructed on lower St. Marks River, 1718.

8. Lower Creek Indians left British allegiance and moved to Spanish protection, settling mainly in Middle and East Florida. Became known as Seminoles or Run-Aways. Circa 1740-50.

9. Florida became a British province and is divided into East and West Florida, 1763-1783.

10. Panton Leslie Trading Post established on lower Wakulla River near Fort St. Marks. Circa 1780.

11. Florida became refuge for many American loyalists during U. S. War for Independence.



12.Florida returned to Spanish sovereignty 1783-1822.

13.Andrew Jackson invaded Florida in campaign against the Seminoles in 1818. Battles fought at Lake Miccosukee, Natural Bridge, and Suwannee Old Town.

14.Steamboat navigation of the Suwannee developed. Branford a river port. (Undocumented)

15.Settlement began in Middle Florida after Treaty of Fort Moultree moved Seminoles southward.

16.Monticello first permanent settlement in Middle Florida, 1827.

17.Seminole War 1836-40.

18.Civil War Salt Works at Adams Beach, Taylor County.

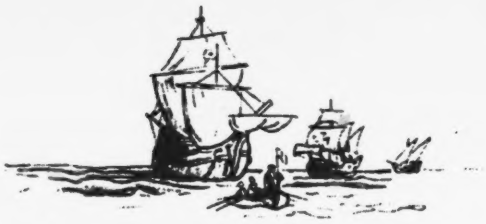
19.Taylor and Dixie Counties became refuge for deserters during Civil War.

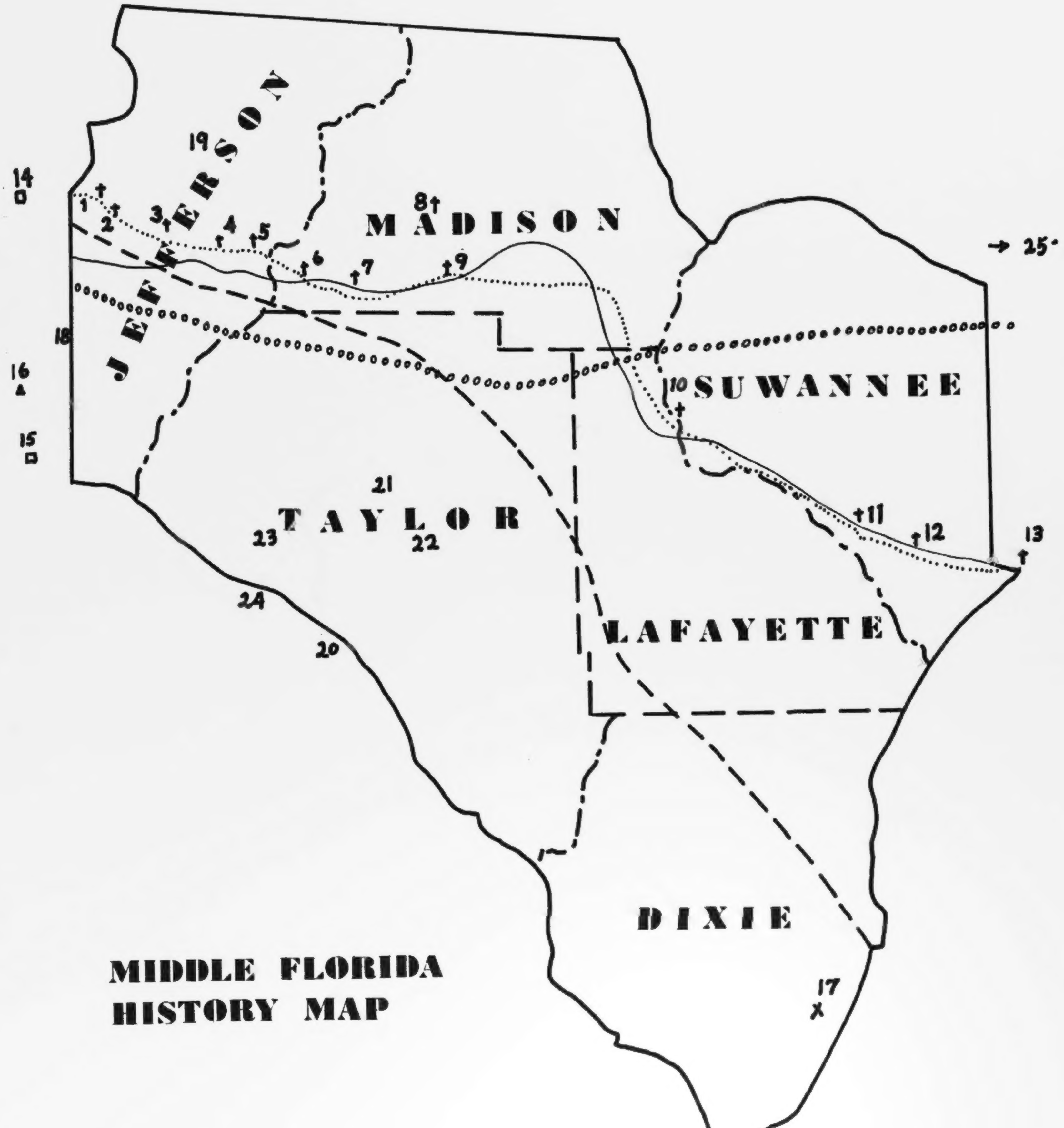
20.Battle of Olustee or Ocean Pond, February 20, 1864.

21.Battle of Natural Bridge, March 6, 1856.

22.Perry, a Wild West type cattle town, with shoot-outs and corner saloons. Circa 1904.

23.Rum running and smuggling of illegal liquor in hollowed logs up and down the Suwannee River during National Prohibition. (Undocumented)




JEFFERSON
MADISON
SUWANNEE
TAYLOR
LAFAYETTE
DIXIE
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MIDDLE FLORIDA
HISTORY MAP

Legend for Map

— — Probable route of Panfilo de Narvaez

ooo Probable route of Hernando De Sota

..... Probable route of Old Spanish Trail

—— Route of Burch Road or First Highway

Location of Spanish Missions

1. San Joseph de Ocula
2. San Juan de Aspalaga
3. San Franciso de Oconee
4. N. S. P. Concepcion de Ayubale
5. San Lorenzo de Ivitachuco
6. San Miguel de Asile
7. San Mateo de Tolapatafi
8. Santa Elena de Machava
9. San Pedro de Potohiriba
10. San Juan de Guacara
11. Santa Cruz de Tarihica
12. Ajohica
13. Santa Catalina de Ajohica

14. ▭ Fort San Luis
15. □ Fort San Marcos de Apalache
16. △ Panton Leslie Trading Post
17. × Suwannee Old Town, site of Anadrew Jackson's battle with the Seminoles.
18. Natural Bridge: Jackson battle with Seminoles and Civil War battle site, May, 1865.
19. Monticello, first settlement
20. Adams Beach: Civil War salt works
21. Perry, Six-Gun cattle town circa 1900.
22. Carbur -- sawmill center
23. Scanlon, early logging camp
24. Camp of Confederate deserters during Civil War
25. Olustee, Civil War battlefield

Historical Events

The Center's surrounding area is rich in American history. Some of the features include the life of the Indians, Spanish conquests, Civil War battles, cattle ranching, lumbering, and a variety of other aspects of pioneer life. Many activities can be established as the program develops. Through research and study much information can be accumulated which will add to the attractiveness of the historical features. Such research should be initiated immediately while there are still some of the older residents in the area and historians who have an intimate acquaintance with various aspects of the area's history.

Outdoor Photography

Outdoor photography has an important place in nature study and is a particularly significant activity in the Center's program. There should be several approaches to outdoor photography , such as:

A. Instruction in the use of various kinds of equipment.

B. Demonstrations and exhibits of new equipment and processes.

C. Contests for best pictures, which might culminate in a photography festival and exhibit to be held annually or semi-annually.

Management of Outdoor Resources

Wildlife resources are extremely important for nature study purposes. As used here, the term wildlife is restricted to mean game, furbearers, and fish.

The average person is elated if he can sight a wild deer, turkey, bear, raccoon, fox, grouse, or quail. Such species are a part of our great outdoor heritage. We owe it to our ancestors to preserve unspoiled this heritage handed down to our care, and we owe it to our posterity not to allow this dearest heritage, to be destroyed. To safeguard our outdoor resource heritage we need to expand our outdoor education efforts so as to teach people to use our wildlife resources without depreciating their value.

Natural populations of wildlife are extremely

Natural populations of wildlife are dependent on the carrying capacity of the habitat (ability to support numbers of animals) in which they live. With an adequate supply of quality foods and good cover for protection, many populations can be maintained at a high level. Some species, however, may fluctuate for unknown reasons. Where food or cover are lacking, short in supply, or of poor quality, the populations will be smaller.

Management of habitat has another contribution in that it can serve to localize and increase game populations at places where the animals may be observed by Center users.

Arts and Crafts

No aspect of outdoor recreation can supply more opportunities for the development of lasting interests than native crafts. These are becoming increasingly important in recent years in enabling people to find and express creative talents and to engage in activities that involve individual participation. The Center can be instrumental in a revival of interest in crafts related to native materials and will create interest and appreciation of the out-of-doors as well as supply leisure time pursuits. In some instances, native crafts will provide an outlet for economic benefits for those who become more skilled. It should be pointed out that with good planning and management native materials in the area can be used for crafts without fear of destroying the supply. In fact, one of the functions of the Center would be to grow the materials needed. Wood carving, ceramics, and lapidary activities are especially appropriate.

The creative manipulation of indigenous materials should produce a genuine product representative of the culture and traditions of the area while reflecting the personality of the craftsman. It should emanate a freshness which gives life to the culture while tradition gives continuity.

Industrial Attractions

One of the most interesting attractions is the products manufactured or raised locally. The Center should select and work with a number of industries, especially those unique to the area, in helping them to contribute to the education and recreation of residents and visitors alike. Special tours for people to observe an industrial process should be provided and, if possible, literature and mementoes should be distributed to those who complete the official tour.

Educational Research

Opportunities are unlimited for research in learning and instructional methods. Of special importance are opportunities to experiment with different patterns of outdoor education. Some examples of educational experiences that would be possible through the use of the Center include:

A. Social studies.

1. What were some of the industrial developments of the area? Why? What routes were necessary because of these developments? Who discovered the forests and forest products? The answers must include trips and firsthand experiences in lumber mills, in finishing plants, etc.

2. Open maps with only rivers and mountains could be given to students to see if they could guess some of the pathways and to what they would lead. Maps might also include natural deposits, and a reconstruction of history through common sense could be enacted.

B. Field trips. Trips of all kinds could be encouraged by the center as a part of the educational programs of schools of the area. Some students might even make rafts and lick-level canoes for excursions in the water. The school buses could be made available to school groups for trips.

C. Outdoor education. New patterns in school camping and outdoor education should be tried -- at all age levels, including kindergarten through college. Day programs to month-long and seasonal programs could be some of the patterns used for outdoor education. Conceptual programs could be developed with a "Woods Hole" type conference on outdoor education including all the disciplines.

Countless other educational methods and learning activities for all age groups could be used and researched. In this sense, the Florida Center could become a center for research in outdoor education in schools and colleges, and it would provide more extensive opportunities in outdoor learning than are found in most areas.

Educational Projects

The following projects emphasize forestry and wood products because of their importance to the area. Each planned lesson should be preceded by an oral or a written quiz covering the subject matter. This quiz should be ungraded. After the completion of subject lessons, the same quiz should again be given. This will enable each student to check his knowledge before and after lessons and also to compare his learning with that of others.

Proposed forestry and related subjects and projects for study follow:

A. The Place of Trees in the Plant Kingdom

Compare Spermatophytes, the most highly developed plants, with other prominent plant orders.

1. Gymnosperms - Discuss characteristics and give examples.
2. Angiosperms - Discuss characteristics and give examples.
    a. Monocots - Describe and give examples
    b. Dicots - Describe and give examples

B. Plant Physiology

1. Kinds of tree roots and their function
2. Tree stem, bole or trunk - taper, shape, crook.
    a. Bark, cambium, sapwood, heartwood, pith, and their functions.
    b. Conduction of fluids vertically and horizontally in the tree stem.
3. Tree leaves:
    a. Shapes, venation, simple and compound, margins, surface differences.
    b. Functions:
        1. Photosynthesis
        2. Transpiration
4. Tree fruits and seeds, and methods of seed disposal

A SPECIFIC EXAMPLE OF OBJECTIVES DEVELOPED UNDER THE FOUR TIME SEGMENTS

1. Forest
2. Water
3. Land
4. Plants
5. Animals
6. Weather

WORK EXPERIENCE	SOCIAL LIVING	HEALTHY LIVING	RECREATIONAL LIVING
1. Knowledge of tree planting	1. Knowledge of the values to man of reforestation	1. Knowledge of healthful living in forest	1. Knowledge of recreation possibilities
2. Skill in tree planting	2. Skill in working with others	2. Skill in self-protection in forest	2. Skill in use of forest for recreation
3. Habit of using new knowledge of forest	3. Habits of personal responsibility toward forest	3. Habits of safety and self-protection	3. Habits of good usage for recreation
4. Interest in reforestation	4. Interest in government's efforts to develop programs	4. Interest in health-giving qualities of forest	4. Interest in protection of forest during use
5. Socially acceptable attitude toward reforestation	5. Acceptable attitude toward controls	5. Attitude toward public health problems in forest	5. Acceptable attitude toward use for recreation
6. Appreciation of what is involved in reforestation	6. Appreciation of struggle to preserve forests	6. Appreciation of relation of forest to personal and group health	6. Appreciation of use of forest for recreation on a renewing basis

C. Dendrology

Instruction in dendrology should be provided for identifying indigenous tree species. Lessons should include characteristics of leaves, flowers, fruit and seeds, buds, bark, and general tree shapes or silhouettes.

1. Drawings and photographs may be made.
2. Leaves, buds, seeds, etc. may be collected.
3. Prepare key to species based on various characteristics.
4. Play tree-identification games (Races or scores).
5. Explain the use of scientific plant names.
6. Illustrate variation of characteristics within tree species:
    a. Inherited
    b. Environmental

D. Study of Lower Plants

The students should learn to identify common shrubs and ground plants associated with the tree species.

1. Indicator plants for highland, lowland, old field, infertile soil, acidic soil, etc.
2. Edible plants and plant parts
3. Dangerous plants:
    a. Eternally poisonous (poison ivy). Learn to recognize the plants and the prevention and treatment measures
    b. Internally poisonous plants of the area

E. Tree Growth

1. Height growth - apical meristem (bud tissue); explanation of how height growth occurs.
    a. Prepare several plots for measuring height growth of several tree species over a number of years.
    b. Fallacy - Upward movement of a nail in a tree.
2. Diameter growth - explain role of cambium and how it functions:
    a. The annual ring -- characterize earlywood or springwood, and latewood or summerwood. Compare them for coniferous and deciduous trees.
    b. Use of increment borer for studying annual rings and growth.
    c. Use of dendrometer bonds for diameter growth studies.
    d. Computing percent growth (compound interest earned by trees).

F. Wood Technology

1. Differences between the hardwoods and softwoods and meaning of deciduous, evergreen-exceptions.
2. Prepare transverse, radial, and tangential wood sections of the indigenous species for study and display.
3. Discuss uses of wood that would require specific sections.
4. Make wood collections, write letters, exchange species with students in other regions of the United States.
5. Discuss properties of wood (grain, pattern, color, softness, weight, workability, etc.).
6. Discuss strength of wood in compression and in tension parallel and perpendicular to the grain.
7. Study basic wood components - cellulose and lignin (get samples).
    a. Dissolve lignin and examine the fibers (hardwoods) and tracheids (softwoods)
    b. Discuss uses of cellulose and lignin
    c. Measure length of fibers with microscope
8. Study specific gravity and wood density and their relationship. Compare specific gravity for species on the tract and for other popular species (Use USDA Wood Handbook)
9. Study wood-moisture relations:
    a. Learn to calculate moisture content percentages, the use of oven, scales, moisture meter. Explain difference in the base used for calculating moisture content of wood versus other materials.
    b. Meaning of equilibrium moisture content and examples for various sections of the U.S.
    c. What are the optimum moisture contents for various wood products and uses:

pulpwood, lumber, flooring furniture, bowling pins, etc.

G. Forest Mensuration

1. Measurement of tree heights (total height and merchantable height):
    - a. Use of hypsometer, Biltmore stick, calculation by similar triangles and ocular estimating
2. Tree diameter measurements:
    - a. Use of calipers, diameter tape, scale stick, and ocular estimating
    - b. Variation inherent in measurements - use of averages
3. Basal area measurements:
    - a. Computing areas of circles (cross sections of trees)
4. Units of tree volume measurement:
    - a. Cubic feet for different size trees
    - b. Cords (4' x 4' x 8' stacks of wood).
    - c. Units (4' x 5' x 8') or (4' x 5.25 x 8')
    - d. Board feet (12" x 12" x 1"). Nominal sizes and actual sizes.

H. Wood Products

1. List prominent wood uses and their retail values.
2. Show part of the tree from which they come.
3. Discuss species and quality of wood required for various products.
4. Discuss new uses for wood developed within the past 10 years.
5. List uses or products which are no longer made of wood.
6. Learn some basic product costs:
    - a. Per unit standing on the stump for pulpwood and sawtimber
    - b. Delivered to mill

I. Wood Processing Plant Visits

Prepare brief, general report of the conversion of the raw material to the manufactured product. Get factual information from plant management and from literature of the American Forest Products Industries.

1. Buckeye Cellulose plant and woodyard
2. Turpentine distillery
3. Lumber mill:
    - a. Watch sawing, edging, trimming, and planing operations.
    - b. Examine board grades, available lengths, widths, and thicknesses.
    - c. From which part of the tree is the best lumber derived? Why?
    - d. Note the large amounts of sawdust, bark, shavings, etc. produced and what use is made of it.
    - e. Examine the log yard and note the amount of handling required for logs and lumber.
4. Cross-tie plant:

    Examine the species used and the method of stacking the ties for seasoning. How important are ties to our railroads?
5. Wood preserving plant - Discuss the chemicals and process used for pressure-impregnating wood to protect it from termites and decay, or to make it fire retardant. How much chemical is absorbed by the wood? What is the depth of penetration?
6. Visit other primary wood producers, such as fence post or pole producers.
7. Visit secondary wood processors (furniture plants, window, door or cabinet manufacturers, etc.) .

J. Forest and Forest Products Enemies

1. Man:
    - a. Uncontrolled fire - Visit a state fire tower.
        - (1) Examine equipment and discuss methods used for fire detection, suppression, and prevention.
        - (2) Discuss the danger and damage of fire:
            - (a) To trees--loss of growth and reduction of wood volume and quality (examine lumber sawn from a fire-scarred log).

(b) To forest--ground cover and soil.

(c) To game birds and animals.

(d) To wood--: Compare burning of wood with melting of steel (use steel wool). Get 20-minute film comparing the effect of fire on heavy timber wood joists with steel joists (available from National Forest Products Association).

b. Uncontrolled grazing and its effect on soil compaction and seedling mortality.

c. Man's misuse of wood-dissatisfaction stemming from the use of the improper species, grade or size for a specific application.

2. Decay Organisms:

a. On trees - Prepare a list of fungal diseases.

(1) Indicate their symptons and severity of attack.

(2) Methods of control.

(3) Collect and identify samples of cankers and rusts.

(4) Examine hyphae under a microscope.

b. On lumber--Study kinds of fungi, molds, and stains.

(1) Discuss the losses inflicted in grade and value.

(2) Study methods of preventing lumber from rotting.

(a) Use of wood, pressure treated with preservatives, when in close contact with the ground.

(b) Reduce the moisture content of wood below that required for fungal activity. (Visit a lumber seasoning yard and dry kiln.)

(3) Debunk the fallacy of "dry rot."

3. Harmful insect enemies:

a. Make an insect collection and separate those that are harmful to trees, to other plants, and those that are helpful to plants.

b. Study the effect of major destructive insects on trees (Ips, Southern Pine Beetle, Black Turpentine Beetle, Pine Sawyer).

c. How are they controlled?

d. Study termites separately.

K. Use of Forestry Tools and Equipment

1. The axe--Teach axemanship:

a. Types, shapes, weight and selection.

b. Sharpening and fitting the handle.

c. Safety and proper use when felling, chopping, and splitting.

d. Conduct contests -- time trials and accuracy.

2. Saws - power and hand saws:

a. Sharpening and setting teeth.

b. Proper use, maintenance, and accessory equipment and materials required.

c. Safety practices.

d. How to make an undercut and its purpose when timber felling.

e. Organize sawing contests and test directional accuracy of felling.

f. Visit woods operations of local firms.

3. Hand compass and its use - how to offset around objects:

a. Types - azimuth and bearing.

   - b. Prepare compass courses to various study sites in the forest.

4. Pole saws and pruners:
   - a. Prune several sample plots to improve lumber quality.
   - b. Prune trees around the headquarters and along the roads to create a cultural appearance.
   - c. Examine tree pruning wounds and keep records of the time required for healing.

5. Weather instruments--Their use and the compilation of seasonal records:
   - a. Barometer
   - b. Rain gauge
   - c. High-low thermometer
   - d. Anemometer
   - e. Wind vane

L. Long Range Projects

1. Establish arboretums using species that should survive under the climate, soil, and moisture conditions of the Hampton Springs tract. Species for consideration include tupelo gum for the swamp and pond area, black gum and black willow for the low sites, dogwood and red maple for the roadsides. Other species that should be successful are white cedar, green and yellow poplar, black cherry, magnolia, persimmon, pignut hickory, sugarberry, American elm, sassafras, loblolly pine, pond pine, post oak, southern red oak, and varieties of bamboo.

2. Hand plant open unseeded areas with slash and longleaf pine.
   - a. Install spacing study plots.
   - b. Experiment with root pruning.
   - c. Establish depth of planting studies.

3. Map the surface property intensively to help identify areas of interest or problem areas. Learn the use of surveying and drafting equipment, calculation of areas, etc.

4. Map the soil types on the property.

5. Plant a small pecan grove and use it for learning the principles of tree surgery:
   - a. Proper method of pruning
   - b. Grafting
   - c. Repair of tree wounds
   - d. Tree climbing with ropes, use of knots, tying and splicing ropes
   - e. Mulching, liming, fertilizing

6. Preparation of tree name plates for placement on trees within town limits in various surrounding communities.

7. Establish plots for making durability studies of wood stakes of various species and preservative treatments.

8. Collection of seeds or cones to help fulfill forestry requirements and special needs or requests:
   - a. Make seed viability studies
   - b. Visit a state tree nursery

Organization & Administration

The nature of an experimental project such as this necessarily requires an organizational and administrative pattern that involves and recognizes the responsibility of several participating governmental agencies.

Taylor County Board

The role of the Taylor County Board of Public Instruction in the organization and the administration of the Center's project is to act as chief fiscal agent and to establish and to prepare a budget that has two parts:

1. Construction Budget
    a. Immediate items such as site treatment and minimum physical facilities
    b. Long range development of site and facilities
2. Operating Budget
    1. Personnel services
    2. Maintenance
    3. Supplies and equipment
    4. Travel and communications
    5. Consultation services

Coordinating Committee

It should be the responsibility of the local boards in cooperation with the State Department of Education to create a special Coordinating Committee and define its responsibility.

It is suggested that the Coordinating Committee review staff requirements and qualifications and review and make recommendations through the superintendent of schools to the Taylor County Board for the appointment of staff. The Coordinating Committee should recommend salary schedules, fringe benefits, and methods of employment practices including policies for hiring and firing.

The Taylor County Board should require the Coordinating Committee to prepare a budget anticipating construction needs, and it should require an annual report covering the items included in the Construction and Operating Budgets and the progress in the development of resource-use programs in the area.

It is anticipated that the role of the Coordinating Committee would be to establish lines of communications that will facilitate the maximum participation of the three government agencies having major responsibility in this project in such a fashion as to extend the work and maintain the integrity of each agency involved.

The Coordinating Committee should establish and periodically review policy with regard to the scheduling of the Center facilities. The policy would be administered by the Director.

State Department of Education

The role of the State Department of Education should be to act as the chief representative of the local school district in negotiating project requests with the Federal government and with other government agencies at the State level. It should have the same general supervision it has over present school operations.

It should be the function of the State Department of Education to solicit, select, and recruit teachers throughout the State to participate in a series of organized workshops; for non-credit workshops the Department should work cooperatively with the Center and the teachers involved to develop the workshop program.

It should be the function of the State Department of Education to act in behalf of the Center, with the Center's understanding, to negotiate with institutions of higher learning for the planning of pre-service, for the development of plans for interns, and for in-service training where credit is expected.

It should be the function of the State Department of Education to participate jointly with the participating schools and the Center in the evaluation of the laboratory's overall effectiveness.

It should be the function of the State Department of Education to receive and participate jointly in the development of annual reports to be transmitted to HEW and other Federal agencies involved in the project.

Federal Agencies

The role of the Federal government is defined in Public Law 89-10 under Title III, and such other agencies as may be involved would participate in accordance with the Acts creating these agencies.

The Taylor County Board and the State Department of Education should earnestly solicit additional volunteer participation of governmental agencies that have contributions to be made to the project in their regular lines of duty, such as representatives of Federal government working in the State of Florida in forestry, wildlife management, etc.

Financing

An innovative program of this character will necessarily have to have access to funds from several sources since it cuts across many different fields.

Part of the responsibility should lie with the State because of the contemplated use of the Center as a demonstration center for teachers across the entire State of Florida.

As it is experimental in character and is in keeping with the general requirements laid down by Congress, the early experimental operating budget would be derived from HEW's program under Title III of the Elementary-Secondary School Education Act. It is anticipated that funds from this source might extend over a period of three years.

A major portion of the construction budget should be derived from private sources such as industry, associations, volunteer agencies, private individuals, foundations, etc. Patterns for this type of development have been demonstrated. An outstanding example is the 4-H Club Center at Rock Eagle Camp in the State of Georgia. Federal funds for construction of such facilities also are available from several programs and agencies, such as the Land and Water Conservation Fund administered by the Bureau of Outdoor Recreation.

Accounting of Funds

All funds derived from local, state, and federal sources, and from fees and contributions should be deposited in the Taylor County Board's account in a fund earmarked especially for this project.

The expenditures for construction and operating budgets should follow the normal procedures as dictated by customs and ways affecting the Taylor County Board, except that no funds earmarked for this project can be used for any other purpose. Annual accounting must be provided from the school board to the participating agencies.

Insurance Coverage

There are no state regulations pertaining to teacher and pupil use of the proposed center. Any rules pertaining to professional leave for teachers to attend workshops or for student participation would be administered by each county school board and would vary throughout the state. Any time a teacher is performing services for students he may be put on "temporary duty" when traveling out of the county. Mr. Eldridge Collins, Legal Consultant for the Department of Education, advised that this be done when teachers accompany students to the center so that the teachers will continue to be covered by their professional group life and accident insurance. This covered in State Regulation Number 130-1.84. Mr. Collins also suggested that all students be transported to the center on school buses so that they too will be covered by public transportation insurance.

There is no need for the center itself to maintain liability insurance if the property is deeded to the County Board of Public Instruction. The county has constitutional immunity in court suits. Fire and casualty insurance should be held by the county to cover any buildings on the site. The personnel of the center should be made aware of the value of individual personal liability coverage.

Staff

A full-time staff of professional and non-professional personnel will be needed to implement the proposed program. In keeping with the plan of phasing the project over a period of three years, the following scheme of hiring is suggested.

FIRST YEAR:	Farm & Game Manager	$ 7,500
	Secretary-Bookkeeper	5,500
	Maintenance Workers (5@ $1.00 hr.)	10,400[1]
SECOND YEAR:	Director	14,000
	Forester	9,500
	Conservationist	9,500
	Maintenance Supervisor	6,000
	Asst. Maintenance Supervisor	5,000
THIRD YEAR:	Naturalist	9,500
	Home Economist	9,500
	Head Cook	8,000
	Assistant Cook	6,500
	Kitchen Helpers (@ $1.30 hr.)	8,112[1]

This proposal would allow the first year to be devoted largely to cleaning up and preparing the site as detailed in the proposed Facilities Budget for 1967-1968; setting up the administrative organizations, including the Coordinating Committee, and deciding on policies; locating suitable persons to fill the Director and Resource-Use Staff positions to be implemented the second year; and preparing the teachers and students in the six-county area to use the Center. Of course, some limited use would be made of the site during the first year.

Qualifications and Responsibilities

The following is a brief description of the responsibilities and minimum acceptable qualifications for professional personnel:

1. Project Director
   a. Responsibilities
      (1) Administration of entire program under policies developed by the Coordinating Committee and approved by the Taylor County Board of Public Instruction.
      (2) Preparation of annual reports to the Coordinating Committee and other reports as may be required.
      (3) Review of all planning and development of site and facilities.
      (4) Coordination of instructional program with curriculum of participating counties.
      (5) Such other duties as the Coordinating Committee may require.
   b. Qualifications
      Doctorate degree in science with major in biological sciences; experience in curriculum development and administration.
2. Resource-Use Staff
   a. Responsibilities
      (1) Assist classroom teachers in planning and conducting laboratory visitations.
      (2) Prepare and maintain exhibits.
      (3) Develop evaluation instruments and techniques.
      (4) Conduct seminars for pre-service trainees and interns.
      (5) Plan and conduct workshops for in-service teachers.
      (6) Participate in interpretive programs for the general public.
   b. Qualifications
      All must have a master's degree and teaching experience.
      (1) Naturalist: Major in biological sciences.
      (2) Forester: Major in forestry, minor in recreation.

(3) Conservationist: Major in conservation education.

(4) Home Economist: Major in health and nutrition.

3. Farm and Game Manager

   a. Responsibilities

      (1) Supervise planting and maintenance of experimental crop areas.

      (2) Supervise animal compounds and maintain habitats for roving animals and birds.

      (3) Assist in preparing and conducting programs involving crops animals.

   b. Qualifications

      Bachelor's degree with major or experience in agriculture and wildlife management.

Scheduling of Facilities

The schedule of the laboratory facilities would be the responsibility of the administration of the Center and the participating school, in cooperation with the Coordinating Committee.

A review of the sixth-grade population of the counties involved in the program indicates that there are approximately 1,700 school children. It is impractical to think that the entire 1,700 would participate in the program in any given year. It is suggested that the Coordinating Committee canvas the county school superintendents and have them indicate in writing an approximate number of children interested in participating in the program and that schedules be built with basic concern given to accommodating the maximum number of the sixth graders in the schools. The rest of the time would be devoted to teacher education and public use. It if expected that an analysis of the total program will show that a significant proportion of the time and facilities and that staffing will be devoted to teacher education.

If resource-use is to become a vital and continuing force in the life of the community, a wide range of opportunities should be provided for the participation of many people at different levels in the community life. It is assumed that in addition to the use of the Center by the school systems and for teacher education, there will be continuous use of it as a laboratory.

It is impossible for the program to anticipate at this stage, without the participation of local leaders at many levels, the actual detailed programming schedule.

Facilities

A program such as that proposed for the Resource-Use Outdoor Education Center will require physical facilities to house and feed the participants, provide needed laboratories, work space and teaching quarters, and accommodate certain program activities.

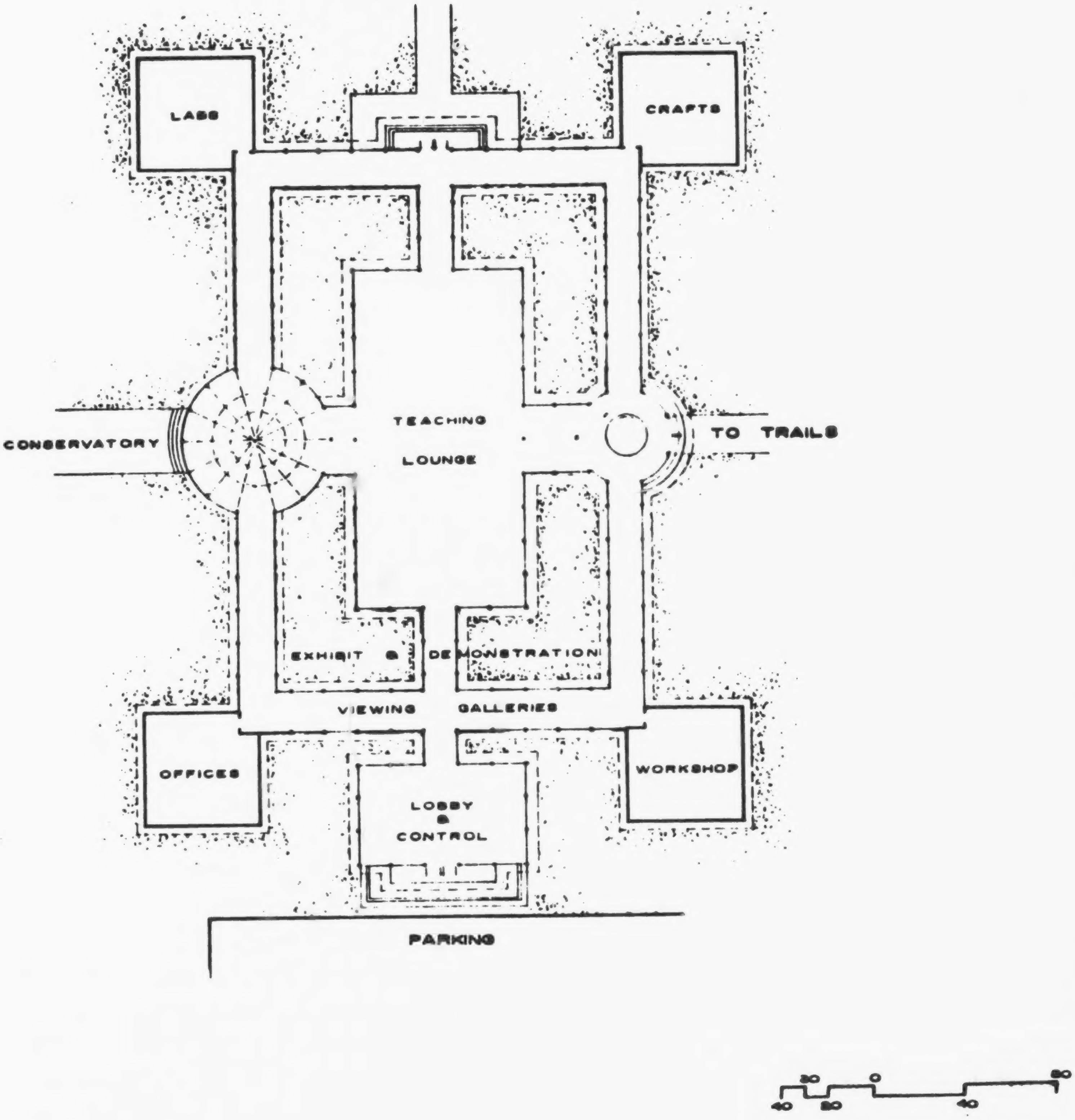
At the same time the concern for spreading the cost of implementation over a period of at least three years is recognized and accounted for in the phasing of the program.

It is recommended that the first year be devoted to cleaning and basic preparation of the site, including fencing it to prevent further dumping and deterioration. Two of the major trails can be constructed, along with picnic shelters and major entrance road and parking lot. One well and septic tank should take care of the water and sanitary needs during this period. It is assumed that, as suggested by local officials, the property now used by the crab packing plant will be acquired during this period. The residence is to be used by the Farm & Game Manager, and the crab plant is to be remodeled and part of it equipped for a crafts shop while the rest will be used for temporary office quarters.

The second year will see the construction of the Interpretive Center, which will contain administrative offices, the main teaching lounge, laboratory and work areas, exhibit space, conservatory, experimental planting areas, a lobby, and storage space. A sketch of the building is attached. Also during the second year the lake will be excavated, additional trails and picnic areas constructed, a fire service road laid out, another well dug, irrigation equipment provided, and a sewage treatment plant will be built.

During the third year the Regional Center will be constructed, which will provide a kitchen and dining area and a recreation hall. A swimming pool is planned for this period and a family camping area. The trails will be constructed, and additional parking lots and entrance roadway. A chapel and gardens are planned. Also to be constructed are the eight group-housing units, which will contain four rooms each, with double bunks and a central living room equipped with two single sofa-beds for a total occupancy of 18 persons to the unit, or 144 persons in all. For school classes, 128 students and 16 counselors or teachers could be housed. A sketch of such a unit is attached. It is estimated that these units would cost $20,000 each. Interest has been expressed in having these units financed privately, through subscription, similar to the plan developed for the facilities at Rock Eagle 4-H Center in Georgia.

A recommended site plan is attached, showing the complete suggested development.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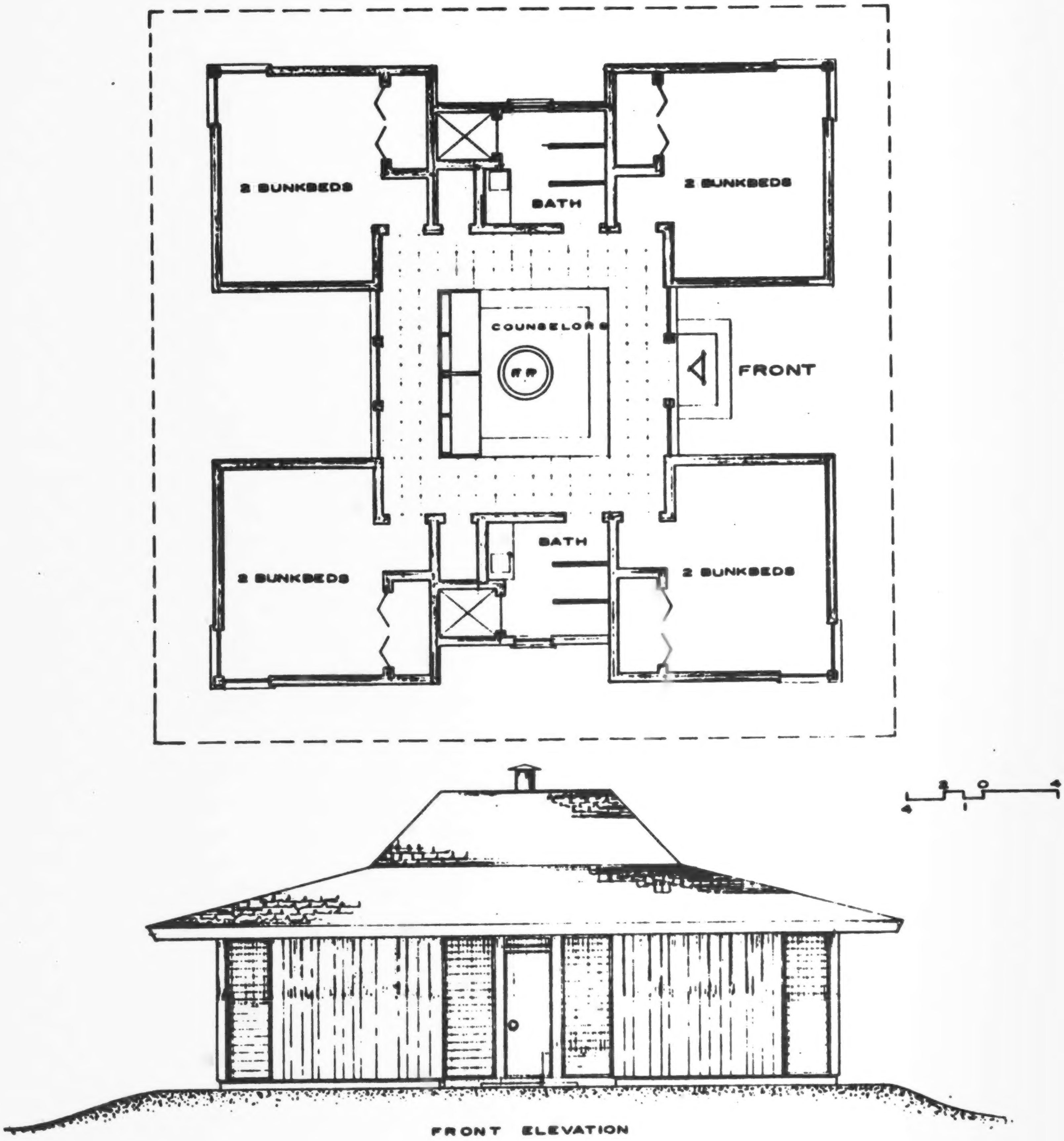
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FP
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BATH
2 BUNKBEDS
FRONT ELEVATION

TYPICAL HOUSING UNIT

Budgets

In keeping with the expressed desire to spread the cost of implementing the program over a three year period, a complete set of construction and operating budgets has been prepared.

The form of the budgets follows the samples in the manual for project applicants prepared by the U. S. Office of Education for Title III projects.

All prices quoted are, of course, subject to escalation with the passage of time. All costs are on the basis of bid contracts for completed jobs and could be reduced considerably should county or state equipment and labor be used.

Assuming bid contracts for construction, and assuming that the suggested operating budget is followed, the total outlay for the first year is estimated at $196,676; for the second year, $465,528; and for the third year, $640,019 (although $160,000 of the third year's total is expected to be sought from private sources, leaving a net total of $480,019).

It should be mentioned that, although Title III projects apparently do not anticipate any income, and no provision was made for computing income in the contract for this study, some revenue will derived from operation of the project; from the sale of food, books, film, and other items; the rental of tent and other housing accommodations; the use of certain equipment; and such items as guided tours, workshops, and special events.

PROPOSED FACILITIES BUDGET

July 1, 1967 - June 30, 1968

Expenditure Accounts	Estimated Expenditures			
			Source of Funds	
Title	Account Number	Total Amount	ESEA III	Other
1. SITE				
Improvement to Site	1210-c			
Fence Perimeter of Property and along S-356 (16,120 lin.ft. @ $1.75)		$ 28,210		
Fence Farm Management Area (2,200 lin. ft. @ $1.00)		2,200		
Septic Tank		1,000		
Well		2,500		
Trail Toilets (3)		500		
Management Trail & Forest Trail (Soil cement, 5,500 sq.yd. @ $2.00)		11,000		
Natural Area Trail (Pine bark, 8,600 lin.ft. @ $1.50)		12,900		
Cypress Swamp Elevated Walkway (Treated timber, 480 lin.ft. @ $15.00)		7,200		
Picnic Shelter, Group		2,500		
Picnic Shelters, Family (2 @ $1,200)		2,400		
Picnic Area Parking Lot (600 sq.yd. @ $2.25)		1,350		
Concrete Curbing & Guttering (360 lin.ft. @ $1.25)		450		
Interpretive Center Entrance Road (Base binder course only, 150 lin.ft. @ $7.50)		1,125		
Interpretive Center Parking Lot (Base binder course only, 11,333 sq.yd. @ $1.50		17,000		
Sub-Total, Site			$ 90,335	
2. BUILDINGS				
Professional Services	1220-a	$ 6,500	6,500	
New Buildings and Additions Maintenance Shop, Equipment Storage and Barn	1220-b	20,000	20,000	
Remodeling Purchase house and crab plant; remodel plant into craft shop and equip		25,000	25,000	
TOTAL		$141,835	$141,835	

NOTE: Where applicable, prices include clearing, grubbing, grading, storm drainage, base preparation, and surfacing in place.

Evaluation:

The present section of the report purports to deal with the essential rationale and basic procedures involved in the evaluation of an instructional program of the type described in the preceding sections of this report.

For our present purposes, the term evaluation will be used as referring to:

A. A process

Considered as a process, evaluation refers to the procedures by means of which value judgments are made concerning a condition or procedure having implications for effective instruction.

B. A product

Considered as a product, evaluation refers to the nature and characteristics of the value judgments themselves.

The Rationale of a Philosophy of the Evaluation of Instruction

If emphasis is to be placed on the rationale of evaluation in the improvement of instruction, the first logical step involved in the development of our theme would consist of a logical analysis of the basic constituent elements involved in effective instruction. For our present purposes it is held that instruction is likely to be effective in proportion as:

A. Each objective of instruction is clearly understood and fully accepted by the learner and is uniquely appropriate to his abilities and needs.

B. Each of the learning situations comprising the instructional program (i.e., teacher and learner activities, methods and materials of instruction, climate of learning, etc.) is nicely adapted to the efficient attainment of one or more of the objectives sought.

C. Teacher and learner each secure, analyze, and interpret "evidence" concerning the total efficiency of the instructional process.

The term "evidence" is here used in the sense of an outward sign or indication of a condition which a reasonable and informed person would be willing to consider as one means of attempting to ascertain the truth of a matter under investigation. Thus the term evidence is used to connote less certainty about a conclusion or judgment than does the term proof. Stated differently, the term proof refers to data of such cogency as to compel acceptance by a reasonable mind; wheras evidence does not imply so high a level of confidence in the validity of the data.

The overall task of evaluation in relation to the improvement of instruction would appear thus to consist of finding sound and defensible answers to such questions as the following:

A. To what extent has each learner made or failed to make satisfactory progress toward the attainment of each of the objectives of instruction originally formulated and accepted by both teacher and learner?

B. To what extent were the original objectives of instruction appropriate or inappropriate to each learner?

C. What revisions, if any, of the objectives of instruction would appear to be desirable?

D. To what extent were the instructional procedures (i.e., materials, methods, etc.,) appropriate to the attainment of the specific objectives sought?

E. What revision, if any, of the instructional procedures appear to be desirable?

The Basic Principles of Evaluation

If evaluation is to serve the purposes thus far stated or implied, it is requisite that evaluations conform to certain basic principles and that certain basic procedures in evaluation are rigorously observed.

Conformity to the following principles is held to be basic to the development of a sound program of evaluation:

A. Evaluations of instruction must have a definite frame of reference. That is, evaluations are to be made in terms of the specific values, goals, or objectives of teacher and learner if such evaluations are to be meaningful and helpful. Evaluative procedures which fail to take into account the self-determined goals of the individual being evaluated are not only of limited or doubtful worth; they may actually be pernicious in their distorting or coercive effects.

B. Evaluations should be continuous and cumulative. Any evaluation as of a given amount is likely to be erroneous or incomplete in certain particulars; and, in any case, evaluations as of a given amount cannot show changes in status. Furthermore, since the goals of individuals change as conditions change, it is necessary for sound evaluative procedures to take into account these changes in individual goals for the reason that the prognostic significance of a given evidence of excellence may vary from time to time in such a way as to make that evidence of greatly unequal value on different occasions.

C. Evaluations should be comprehensive and conclusive. Since in any given situation multiple goals of learning usually are being sought, it is necessary to secure evidence of the extent to which each of the goals of instruction has been or is being attained. It is clear that in certain instances given goals may be mutually exclusive, or that progress toward a given goal may be offset by losses with respect to other goals. While individuals should be evaluated on the basis of a "total pattern" of characteristics of desired excellence, it should be recognized that superiority in some characteristic may be regarded as compensating, to some extent, for deficiencies in other respects.

The primary purpose of all evaluative procedures is that of encouraging and promoting improvement with respect to the condition or activity being evaluated. Consequently, all evaluative procedures should permit and provide for specific, constructive suggestions for improvement. In general, effective evaluation will make slight and incidental, if any, use of inter-individual comparisons; rather it will compare the record of the given individual at successive time intervals and always in the light of his own unique needs and purposes. Evaluative procedures should generally avoid the use of the concept of "fixed standards" of learner attainment--since in the past this concept has often implied "an identity of individual learner needs and purposes." Sound evaluative procedures will emphasize flexibility and optimum growth in terms of differential purposes.

In view of the essential nature of evaluation (i.e., making value judgments of the progress being made toward specific objectives) and of the basic purpose of evaluation (i.e., improvement of a condition or a process) it is clear that sound evaluative procedures will involve the active participation of the persons primarily concerned in the evaluation. That is, effective evaluation will emphasize self-appraisal activities. However, this statement does not exclude the use of outside persons of specialized skills in evaluation who, on invitation, may be prepared to serve in a resource or consultant capacity on various technical aspects of the evaluation program. Such consultants would likely be of most value in:

A. Suggesting clarifications or sub-analyses of objectives so that it would be possible to secure appropriate evidences relative to each sub-objective;

B. Suggesting possible techniques and procedures for securing appropriate evidences of goal attainment;

C. Suggesting cautions to be observed in relating the obtained evidence to the objectives sought.

Fundamental Processes of Evaluation

Evaluation of instruction involves the following fundamental processes:

A. Adequate Analysis of Objectives. That is, objectives must be analyzed in such terms that it is possible to secure appropriate evidences of the extent to which such objectives are being realized. It is fruitless to formulate an objective, however worthy, unless it is possible to analyze it in such a way that evidence can be obtained to show the extent to which it is being realized. If the objectives of instruction are stated in vague or general terms, it may be difficult to secure evidences showing the extent to which they have been attained.

B. Securing Appropriate Evidences of a Status, Product, or Process. All evidence items must have a clear and definite (even if indirect) relationship to the objectives. Evidences may involve either subjective or objective data, or both. Commonly used forms of evidence include: scores on objective or essay tests, products created by the learner, rating scales, interviews, anecdotes, sociometric devices, observational data, etc. It is clear that the type of evidence required in a given situation will be intimately related to the specific objective, i.e., the nature of the objective will determine the type of evidence required by the situation. Obviously, the evaluation will be sound only in proportion to the quantity and quality of the evidence upon which it is based.

C. Relating the Obtained Evidences to the Objectives Sought. This step involves critical, reflective thinking in answering the query, "To what extent do the available evidences indicate that the desired objectives have been or are being effectively realized?" It is again obvious that the evaluations obtained will be dependent upon the soundness of the analytic procedures employed in arriving at them.

Practical Implications

The foregoing discussion of the philosophy, principles, and procedures involved in the evaluation of an instructional program is considered to have important implications for the total program of resource-use education in the Taylor County project. At the risk of emphasizing the obvious, two of these practical implications are briefly stated:

A. The planning and execution of every educational enterprise requires that systematic and comprehensive attention be given to the concept of evaluation at every stage of that enterprise (i.e., in the delineation and clarification of the "ends" to be sought; in the selection of particular "means" to be used in seeking the attainment of given "ends"; in determining the extent to which each desired "end" has been acheived; in determining the effectiveness of a given "means" as a device for attaining a given "end," etc.).

B. The intrinsic importance of evaluative concepts as inescapable aspects of the entire educational process requires that policies of personnel selection and in-service training give special emphasis to competences in evaluative procedures. Thus, in planning for the staffing of the total project, provision should be made from the beginning that the central administrative staff have a highly competent person assigned major responsibility for evaluative policies and procedures. One of these policies will provide for the continuous upgrading of the evaluative competences of teachers and students.

Illustrative Procedures

Earlier in this study, certain proposed learning activities of the Resource-Use Project related to forestry are outlined. It is proposed in the following paragraphs to cite certain brief illustrations of ways in which the philosophy and rationale of evaluation (as previously described) could be applied to specific learning experiences related to forestry.

It should be recalled that the initial fundamental process of evaluation involves an adequate analysis of objectives. For our present purposes it seems appropriate to point out that the criterion of "comprehensiveness" (see Item C, Basic Principles of Evaluation) requires that all major types of anticipated outcomes be included in the total evaluation program. Thus, the various learning experiences related to the forestry projects involve the following major types of anticipated learning outcomes:

1. Improved knowledge (i.e., increased factual information, better understanding of cause and effect relationships existing in nature, etc.).
2. Improved skill (i.e., increased expertness in the execution or performance of a specific act, practical ability in a functional situation, etc.).
3. Improved overt behavior (i.e., a changed activity of the total organism resulting in a desirable outcome).

Once a determination has been made concerning the various major objectives (i.e., knowledge, skills, overt behavior) of a particular educational project, the next step involves the securing of appropriate evidences concerning the extent to which desirable progress has been made in the attainment of each of the desired learning outcomes. Obviously, the type and amount of "evidence" needed depends on the nature of the particular desired learning outcome.

Examples of the types of evidence appropriate for evaluating each of the major types of outcomes are listed below:

Knowledge Outcomes

Essay-type quizzes or one or more types of objective test items (i.e., true-false, completion, matching, multiple choice) could be constructed to measure the post-instruction versus the pre-instruction mastery of significant factual information about many sub-aspects of the total forestry project (e.g., Plant Physiology, Section B, Wood Technology, Section F; Wood Products, Section H).

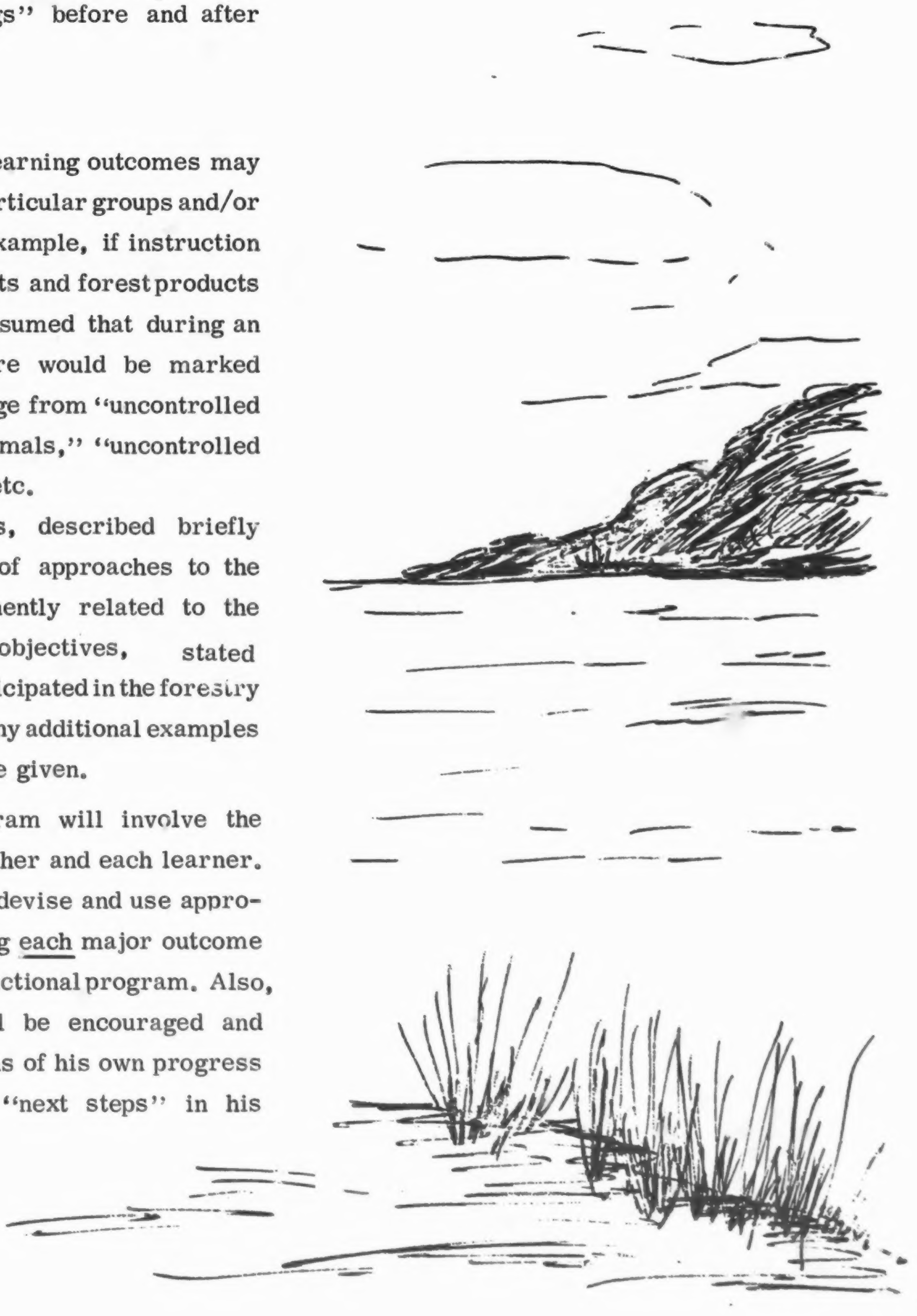
Skill Outcomes

Many types of provisions could be made for securing "before" and "after" measure of evidences of increased expertness in the performance of various specific activities related to the forestry project. Several examples of types of improved performance desired in resource-use activities related to the forestry project might well include the following:

a. Identification of indigenous plants of various types.

b. Expertness in various types of forest mensuration--tree height, diameter, volume, etc.

c. Increased competence in the use of forestry tools and equipment such as axe, saw, pruner, etc. can be inferred from evidence concerning improvements in the skilled use of the above and similar tools as based on comparisons of "performance ratings" before and after instruction.



Overt Behaviors

This category of desirable learning outcomes may refer to changed responses of particular groups and/or of specific individuals. For example, if instruction concerning the enemies of forests and forest products is successful, it is to be presumed that during an extended period of time there would be marked decrease in the amount of damage from "uncontrolled fire," "damage to game and animals," "uncontrolled grazing," "misuse of woods," etc.

The illustrative procedures, described briefly above, are merely examples of approaches to the collection of evidences pertinently related to the attainment of a few specific objectives, stated implied as desired learning anticipated in the forestry project. If space permitted, many additional examples of evaluative techniques could be given.

The total evaluation program will involve the active participation of each teacher and each learner. Presumably each teacher will devise and use appropriate techniques for evaluating each major outcome of instruction in his total instructional program. Also, presumably, each learner will be encouraged and trained to make valid evaluations of his own progress as a basis for determining "next steps" in his educational program.

Appendix

A REPORT ON THE HISTORY OF MIDDLE FLORIDA

By
Ray F. Broussard

The first Europeans to penetrate the area of Middle Florida between the Suwannee and St. Marks Rivers were the Spaniards, who arrived early in the Sixteenth Century. They found the Apalachee Indians living in a group of villages between the Aucilla and Apalachicola Rivers. The Apalachees were hunters and fishermen, but also had a well developed agricultural economy with fields of maize and squash. While they did not live very near the coast, they visited it frequently to fish and to hunt shellfish. Another Indian group found by the Spaniards were the Timucuans, living near the Suwannee, St. John, and Santa Fe Rivers. The Timucuans were similar in many ways to the Apalachees, but were not as warlike.[1]

The first Spaniard to explore Florida was Ponce de Leon, its discoverer. In his travels, however, he did not go farther north than Tampa Bay. Encountering hostility from the South Florida Indians during his second visit when he had hoped to plant a settlement, Ponce de Leon was wounded by an Indian arrow and returned to Cuba where he died shortly thereafter.[2]

Not long after de Leon came the expedition of Pamfilo de Narvaez, which landed at Tampa Bay on April 14, 1525.[3] Much is known about this group, for the treasurer was none other than that famous traveler Alvar Nunez Cabeza de Vaca, and his accounts of their journeys were published only a few years thereafter. After landing at Tampa, Narvaez discovered a small quantity of gold among the Indians. While there was no gold in the land, it has been suggested that perhaps this small amount was obtained from shipwrecked Spanish ships. Narvaez determined to push inland and search for the precious metal. He ordered his ships to proceed up the coast and to await the land expedition when a good harbor had been discovered. Then, Narvaez and his men went inland and marched until they reached a deep swift river which could not be crossed without great difficulties. Stopping there for several days, they sent parties to its mouth to explore the possibilities of a harbor at its entrance; but they found only shallow sandy bars.

Continuing their march, they began to run out of food and were reduced to eating palmetto, which Cabeza de Vaca described as similar to palms growing in Andalucia. These perhaps were the cabbage palms which grow profusely in the neighborhood of the Suwannee River.

The expedition came to a second river, which was so swift and whose banks were so steep that it was necessary to construct a raft of logs in order to cross. One impetuous soldier attempted to swim his horse across, but the current was so swift that both he and the horse were drowned.

After crossing this river, which possibly was the Suwannee, the Spaniards reached higher ground, and the swamps were left behind. They were impressed with the pines and other trees growing there. Finally, arriving in Apalachee, they found food and camped there for awhile. They experienced such hostility from the Indians and were so discouraged at the failure of their ships to meet them at the mouth of the St. Marks River that they built boats of their own and sailed on to eventual disaster.[4]

Cabeza de Vaca published an account of this journey, which was eagerly read in Europe. One of the interested in readers was Hernando De Soto, who had participated in early conquests of Panama and Peru in a subordinate capacity. He longed for the fame and fortune of a full-fledged conquistador and secured permission from King Charles of Spain to conquer and colonize Florida. Leaving his home base of Cuba, where he was governor, De Sota landed at Tampa Bay in 1539 with a large force. He discovered traces of Narvaez almost immediately and struck out along almost the same route as that followed by his predecessor. The swift rivers were not encountered, but much time was spent traversing a deep and difficult swamp. Finally arriving at Apalachee, De Sota encountered fierce opposition from the Indians. Wintering there, the Spaniards pushed on to the West and left this land with very few traces of their passage except for the hatred and mistrust of the Indians for all strangers.[5]

Behind the conquistadores came the missionaries. Fired with zeal for converting the Indians, a small group of Dominican friars led by Fray Luis Cancer refused all armed escort for their protection and landed near Tampa Bay in 1549. The Indians, however, had learned to expect nothing but death and torture from the Spaniards and before the gentle missionaries could impart their message of peace and love, all the friars lay dead, killed by the Indians on shore within sight of their ships.[6]

A decade later, in 1559. Tristan de Luna y Arellano was sent by Viceroy Antonio de Mendoze of New Spain to found a colony at the present site of Pensacola. He was unable to find sufficient sustenance after his supplies were lost in a storm. The settlement failed after one season.[7]

Spaniards then decided to abandon all attempts to colonize Florida, and the land might well have remained abandoned had it not been for the activities of the French. Jean Ribault and Rene de Laudonniere established a colony of French Hugenots at Fort Caroline in 1564. Although their exploring expeditions ranged far inland in their search for gold, there seems to be no evidence to indicate that they penetrated as far as middle Florida.[8]

The Spaniards could not tolerate such encroachment upon territory they claimed for their own, so the French had to be driven out. The task fell to the Governor of Cuba, Pedro Menendez de Aviles. He accomplished it with considerable bloodshed and cruel efficiency in 1565. In the process he also founded the first permanent settlement at St. Augustine.[9]

From the base at St. Augustine, the Spaniards moved their control of the area forward with the missions. Soon there were several flourishing institutions in the area of the first colony. Then in 1602, a Timucuan chief requested that friars be sent to his villages. With such an open invitation, the mission movement crept slowly westward until by 1633, a string of missions stretched all across northern Florida from St. Augustine to Fort St. Luis near St. Marks.[10]

Everything did not run smoothly, however; there were Indian revolts and uprisings. Some of the friars were killed. The troubles grew to the proportions of a general uprising in 1638, when the Apalachees had to be subdued by a force from St. Augustine. After this, the Apalachees were required to send a specified number of men at regular intervals to work upon the fortifications of St. Augustine.[11]

There were about fifteen missions in all. Six of them were located in Middle Florida. Altogether it had been estimated that six thousand Indians resided in the missions during the late years of the Seventeenth Century. These religious enterprises were also economically important to Spanish Florida, for it was the only place in the colony where agricultural endeavors were pursued with any enthusiasm. Under the tutelage of the kind friars, the Indians tilled the soil and produced an abundance of cereal grains, which were shipped from St. Marks around the peninsula to St. Augustine. Eventually, because of pirate attacks, these journeys became too dangerous; so a supplementary and safer route was organized. A trail leading from St. Augustine to the mission chain across northern Florida to St. Marks became the preferred route for shipment of grain and supplies when the pirates were too bothersome. This route or trail was the first permanent road in Florida, and it followed the route generally taken by U.S. 90 across Madison and Jefferson Counties.[12]

Disaster struck the missions in 1703 when Colonel James Moore of South Carolina led a raiding expedition into Florida and destroyed almost all of the mission chain. The buildings were burned, the friars were killed, and many of the Indians who did not escape into the forests were taken captive and brought back to Charleston.[13]

For almost a decade after the Moore raid, the Spaniards seriously entertained the thought of moving the capital from St. Augustine to St. Marks on Apalachee Bay. The fertile soil of Apalachee would provide a better base for an agricultural colony. But the only thing that came of the plan was the construction of Fort St. Marks at the junction of the Wakulla and St. Marks Rivers in 1718.[14]

The Spaniards also modified their Indian policies somewhat. A definite effort was made to win the friendship of the Lower Creeks, who were wearying of their allegiance to the English. With the Apalachee Indians dispersed, the Spaniards felt the need for new inhabitants for the region depopulated by the Moore raid. The policy was moderately successful, and during the period 1718-1748, numerous groups of the Lower Creeks moved into areas formerly occupied by the Apalachee Indians. Gradually these people came to be known as Seminoles or Run-Aways. In addition to Indians, there were a number of Negro slaves who escaped from their masters in Carolina and Georgia and came to live in Florida. They were protected by the Spaniards and often lived in villages in close proximity to the Seminoles.[15]

War between England and Spain decided the fate of Florida, and it changed hands in 1763. The Spaniards chose to leave rather than live under the English flag. The English divided the territory into two provinces, East Florida and West Florida, and established capitals at St. Augustine and Pensacola. While there were English colonists and settlers along the East Coast, there seems to have been little English penetration of Middle Florida. The one exception was Fort St. Marks, which was taken over and manned by an English garrison. Also, one of the famous Panton Leslie trading posts was located on the Wakulla River, about five miles from the fort.[16]

With the Second Treaty of Paris in 1783, Florida was returned to Spain. This time it was the British who left in large numbers, but a few took the oath to the Spanish King and remained. Most important was the Panton Leslie post in the vicinity of Fort St. Marks. Also the Spanish colonial policy, now considerably liberalized, welcomed immigrants from the United States and provided them with generous grants of land.[17]

With Spanish authority weak, the Seminole Indians residing in North Florida engaged in raids on Georgia and Alabama. When these became intolerable, General Andrew Jackson, in command of the Tennessee militia, was authorized by President James Monroe to lead a punitive expedition against the Indians. Jackson entered Florida north of Monticello. On the edge of Lake Mikasuki he fought his first battle with the Mikasuki Indians, a Seminole tribe, and defeated them on April 1, 1818. Pushing southward in pursuit of other Indians, General Jackson occupied Fort St. Marks and found it deserted except for Alexander Arbuthnot, a Scots trader.[18]

Learning that the Indians were farther to the south, he prepared to follow them; but meanwhile a detachment of his forces met a few Indians in a skirmish at Natural Bridge on the St. Marks River on April 12, 1818. Then the army marched to Suwannee or Suwannee Old Town, where there was a concentration of Seminole and Negro villages. A small battle was fought near a cabbage palm swamp late in the afternoon of April 12, 1818. The combined force of Indians and Negroes was defeated, and many escaped by swimming the Suwannee River.[19]

Upon returning to St. Marks, Jackson turned his attention to Arbuthnot and Lieutenant Robert C. Ambrister, a Royal Marine who had been captured near Old Town. The men were tried for inciting the Indians to war against the people of the United States. A court martial found them guilty, and they were executed.[20]

The execution of British citizens upon Spanish soil by a general of the army of the United States precipitated an international crisis which strongly influenced the negotiations for the acquisition of Florida by the United States. When the British failed to take a strong stand, Spanish resistance collapsed, and Florida was ceded to the United States.[21]

Once Florida was a part of the United States, immigration from neighboring states proceeded rapidly. Most of the new settlers entered Middle Florida and settled in Jefferson and Madison Counties where it was known the land was suitable for agriculture. Problems of communications were paramount, as it was evident the former two colonies of East Florida and West Florida, with capitals at St. Augustine and Pensacola, could not operate without a centralized capital. Therefore a commission was appointed by the Territorial Legislature to select a site for a new capital approximately half-way between the two old colonial capitals. One of the commission members was strongly in favor of a site at the branch of the Suwannee and Santa Fe rivers, or near the present location of Branford, but he was outvoted when most of the members chose Tallahassee as the site.[22]

Pressure from settlers moving into Jefferson and Madison Counties forced the United States Government to do something about the Indians in the area. The result was the Treaty of Fort Moultree signed in 1823 in which the Indians agreed to move well south of the mouth of the Suwannee, and the land was opened to settlement. Most of the Indians left the area, as agreed, but did not like the lands reserved for them to the south and began to filter back and hunt in the area now opened for settlement.

The first settlers chose the land near Monticello as their home. One of the early colonists was Prince Achille Murat, eldest son of the former king of Naples. He had a plantation near Waukeenah, which he called Liponia. He married the grant niece of George Washington, Kate Willis. Jefferson and Madison Counties were created as political units in 1828.[24]

The town of Monticello was laid out in 1828. The first settler, John G. Robinson, was the first mayor and first postmaster. First Protestant religious services were held in 1822 by the Rev. John J. Triggs, a Methodist minister, and a Methodist District was organized in Monticello in 1832. The first Baptist church was organized in 1829 at the Casa Bianca Plantation two miles south of Monticello. The first Presbyterian church in Monticello was organized in 1841 with the Rev. Richard J. Mays as pastor. The first Episcopal church was Christ Church in Monticello in 1844. The first educational institution was Jefferson Academy in Monticello, which was chartered by the Territorial Legislature in 1832.[25]

Realizing the need for good communications and transportation, the U.S. Congress authorized a survey for the construction of a highway across northern Florida. The route was surveyed by Captain Daniel Burch, U. S. Army, and it followed the St. Augustine or Old Spanish Trail. The road was constructed by Jack Bellamy using slave labor. This was the first road in this area of Florida and modern U. S. 90 follows its approximate route.[26]

Difficulties with the Indians commences the next chapter of the history of Middle Florida. Friction between settlers and the Seminoles increased until by 1836 full scale war had broken out. While there were Indian attacks and massacres in the settled areas of Madison and Jefferson Counties, the bulk of the fighting took place farther south. One event worth noting was that a volunteer company from Jefferson County manned a blockhouse at Suwannee Old Town against an Indian siege. After holding out for some time, they had to be evacuated by boat down the Suwannee River.[27]

With the coming of railroad transportation to the region in 1859, Middle Florida prospered and settlement increased. Cotton and tobacco plantations took advantage of the rich land, and the first local industry was a cotton mill located in Monticello. The mill, which was completed in 1858, was known as the Bailey Cotton Mill and was the only manufacturing enterprise in the state except for a few lumber mills, a leather factory in Madison, and a small iron foundry at Newport, on the St. Marks River.[28]

With the outbreak of the Civil War, Florida seceded along with the other cotton states. Many volunteers joined the armies of the Confederacy and fought in the battles of Virginia and Tennessee. In Florida, itself, there were only two battles of consequence and both took place in Middle Florida. The first was the Battle of Olustee or Ocean Pond on February 20, 1864. A large Union force advanced from Jacksonville with the intention of destroying or capturing valuable food which

Florida plantations were producing and shipping to the armies at the battle front. They were stoped by Confederate forces commanded by General Joseph Finegan, and the rich plantations of Madison and Jefferson Counties were saved from destruction.[29]

The other Civil War battle came at the very end of the war and is known as the Battle of Natural Bridge. A Union raiding party landed on the coast and was advancing toward Tallahassee when they were stopped at Natural Bridge on the St. Marks River by a force of Confederate Home Guards commanded by General William Miller on March 6, 1865.[30]

Most of the events of interest during the war concerned home front operations. Securing salt by boiling sea water had been known to Floridians for some time. There was even a road from Monticello to the mouth of the Aucilla River, known as the Salt Road. In an effort to provide for the needs of their country, salt works were set up many places along the coastline of Florida, but were at the mercy of raiding parties from blockading Union ships. Because of its remote location and shallow depth, which made it difficult for Union vessels to approach, Adams Beach in Taylor County was one of the most successful of these operations.[31]

As in all wars there were deserters. Because of the vast unknown areas of swamp and woodland, Florida was a natural hiding place for deserters from all over the Confederacy. As their numbers increased, they organized themselves into an irregular force which they called the Florida Royals, led by William W. Strickland. Their headquarters camp at one time was located at Snyder's Island near the mouth of the Econfina River. Near the end of the war, an attempt was made to round up these men, and a Confederate force commanded by Colonel Henry D. Capers moved into Perry, the county seat of Taylor County. Some homes were burned, and in an effort to prevent citizens from harboring deserters, their wives and children were taken prisoner and were confined in a detention camp near Tallahassee and were released only at the request of Governor John Milton. This deserter roundup caused much hard feelings.[32]

The postwar period in Florida was similar to that of most of the South. There were the occupying troops, the Carpetbag Legislature, and eventually the Ku Klux Klan. Agriculture continued to be the main occupation of the people of Middle Florida until the late years of the century, when extensive cattle ranches were established in Taylor and Dixie Counties. These cattlemen were of the western type. In fact, many of them came from Oklahoma and the western plains. They quarreled and there were gunfights and shoot-outs in the streets of Perry, which had become the cattle capital of the area because by 1905 it was served by three railroads.[33]

Eventually the cattle business died down only to be replaced by lumbering operations. The extraction of turpentine and occasional lumbering had always been a sideline for the first settlers in Taylor County, but it became big business at the outbreak of the First World War in 1917. The Burton-Schwartz lumber mill for the preparation of cypress was the largest in the world in its day. Their lumbering camp at Carbur, south of Perry, was a logging boom town for almost a decade.[34]

The medicinal qualities of the waters at Hampton Springs near Perry came to the attention of the first settlers of the area. The coming of the railroads to nearby Perry prompted the construction of a grand resort hotel at the site of the spa. Advertised nationally, Hampton Springs Hotel soon entertained visitors from all over the United States and from many foreign countries. Special excursion trains brought tourists from nearby states. Business began to decline during the depression days of the thirties. During World War II, the Hotel served as living quarters for temporary residents of the area, and it burned in a fire of mysterious origin in 1954.[35]

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[13] Boyd, Here They Once Stood, 10-15. Boyd shows a list of the missions and their locations.

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Bibliography

The following bibliography is neither a definitive nor a perfect one. It is a suggestive one reflecting the philosophy and principles underlying the proposed project and some kinds of materials in selected areas that could be essential and helpful to all persons concerned with the program. It is reasonable to believe that teachers and children who will participate in the program would want and need to develop their own bibliographies according to their interests.

Good background reading materials and other related source materials are essential tools for this program and teachers might discover richer and more varied materials through the use of aids such as Subject Guide to Books in Print, Books in Print, Book Review Digest, Standard Catalog for High School Libraries, Children's Catalog, Cumulative Book Index, Readers' Guide, and other aids available in local and university libraries.

Upon examination of the following suggested list of books, the user will become aware that some books are not current and not available for purchase. They may be found, however, in local library collections or in collections outside the community. Inter-library loan privileges make university collections and most community library resources available.

Special sources like clubs, societies, committees, and associations, which will furnish catalogs of their publications, may or may not be listed in the preceding aids. These must not be overlooked. A list of state organizations and private organizations which will furnish catalogs for useful material is furnished separately in the appendix. Two examples of these organizations are the Sierra Club of San Franciso and the National Audubon Society.

Extremely useful materials published by state organizations and state governments can be found in the Monthly Checklist of State Publications.

Often overlooked is the wealth of material published by the Federal Government. By consulting the indexes to Federal publications, the Documents Catalog, or by placing your name on the mailing list to receive notices of special government publications, many fine and inexpensive materials become available. The Superintendent of Documents, Government Printing Office, Washington, D.C., furnishes the free listing of the special publications.

An additional helpful index is Paperbound Books in Print, listing the inexpensive and popular paperbounds like Penguin, Mentor, Signet, Great Outdoors, Golden Books, Natural History Library series, and many others.

In addition to factual material, individuals will desire inspirational and cultural materials, no doubt. This sort of list is likely to be a very personal one. Books of poetry, novels, essays, books of travel, and others have a place in this collection. Examples are Steinbeck's Travels With Charley, Thoreau's Walden, and Marjorie Kinnan Rawlings' The Secret River, for children, and The Yearling, for children and adults.

The scope of this project is so wide that no attempt has been made to list titles in specific areas as birds, insects, fishes, ferns, algae, fungi, grasses, reptiles, minerals, crafts, photography, arts and crafts, weather, and many others. Any one resource or activity has unlimited possibilities, and it should be the privilege of the participant in the program to search for and to find the best and most satisfying sources to undergird his activities.

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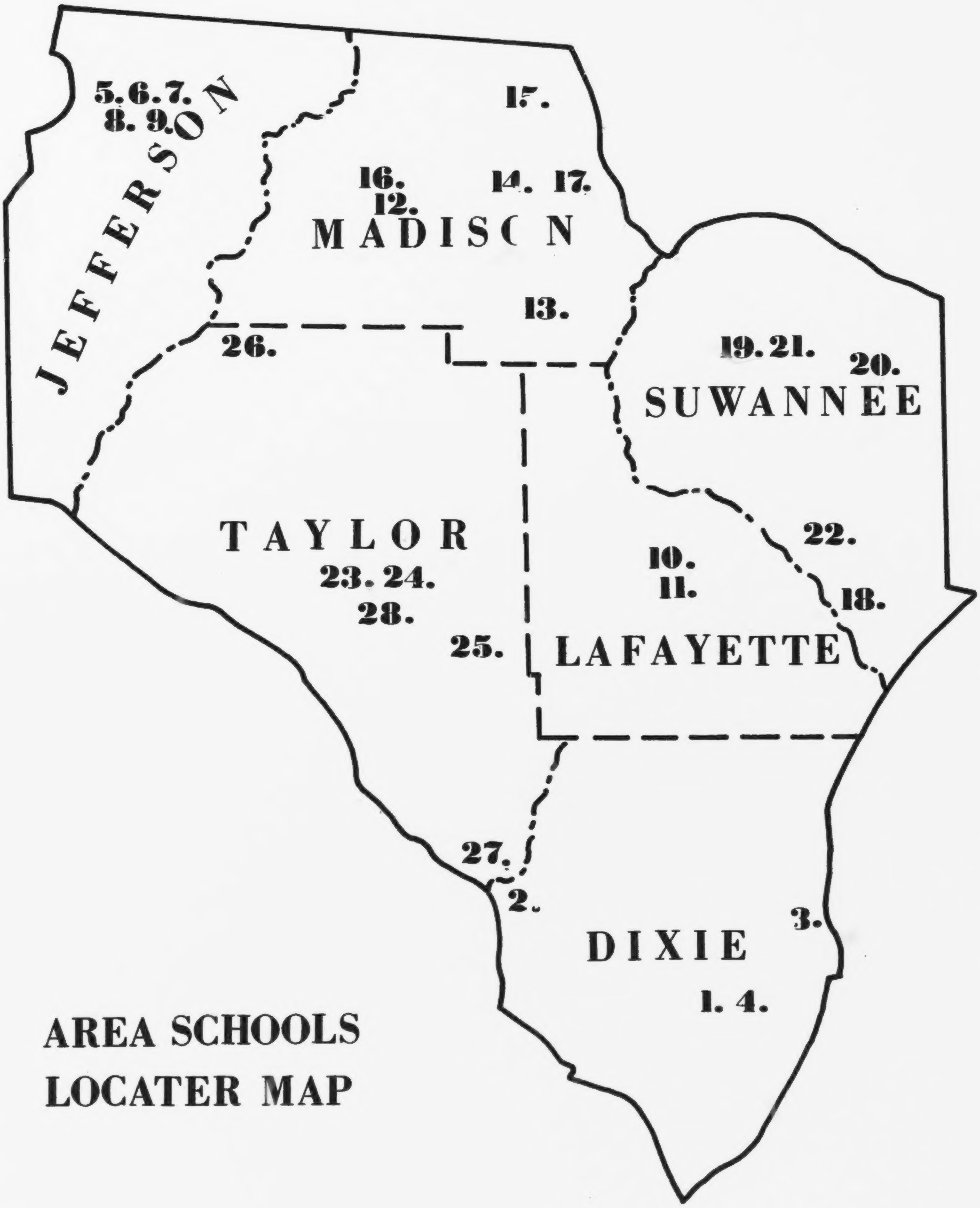
List of Area Schools

1. Dixie Co. Elem-High School (K-12)	Cross City	110	45
2. Gena Elementary (1-6)	Steinhatchee	10	45
3. Old Town Elementary (1-6)	Old Town	30	60
4. Oliver High School (1-12)	Cross City	20	45
5. Aucilla Elem-Jr.High (1-8)	Monticello	15	40
6. Jefferson County High (K-12)	Monticello	120	40
7. Aucilla Jr. High (1-8)	Monticello	15	40
8. Howard Academy Elem. (1-6)	Monticello	125	40
9. Mamie B. Scott Elem. (1-6)	Monticello	81	40
10. Lafayette High School (1-12)	Mayo	60	33
11. Kerbo Elem School (1-8)	Mayo	15	33
12. Greenville High School (1-12)	Greenville	60	31
13. Lee School (1-10)	Lee	30	32
14. Madison Elem (1-6)	Madison	90	37
15. Pinetta School (1-10)	Pinetta	30	41
16. Greenville Training (1-12)	Greenville		31
17. Madison Training (1-12)	Madison	85	37
18. Branford High School (1-12)	Branford	50	45
19. Clayland School (1-6)	Live Oak	20	50
20. Wellborn Elem. (1-6)	Wellborn	20	59
21. Douglas High School (1-12)	Live Oak	85	50
22. O'Brien High School (1-12)	O'Brien	30	47
23. Gladys Morse Elem (1-6)	Perry	150	5
24. Perry Elem. School (1-6)	Perry	140	5
25. Salem High School (1-12)	Salem	10	24
26. Shady Grove School (1-8)	Shady Grove	10	18
27. Stephensville School (1-8)	Steinhatchee	10	43
28. Jerkins High School (1-12)	Perry	140	5

Sources: Florida Educational Directory,
October 1966-67
Florida State Road Department Map


JEFFERSON
5. 6. 7.
8. 9.
15.
16.
12.
14. 17.
MADISON
13.
26.
19. 21.
20.
SUWANNEE
TAYLOR
23. 24.
28.
25.
22.
10.
11.
18.
LAFAYETTE
27.
2.
3.
DIXIE
1. 4.

AREA SCHOOLS LOCATER MAP

SOURCES OF POSSIBLE ASSISTANCE FOR OUTDOOR EDUCATION CENTER
TAYLOR COUNTY

Taylor County Development Authority
Perry, Florida (Land and possible financial assistance in future)

Buckeye Cellulose Corporation
Foley, Florida (Use of large tracts of land)

All participating Boards of Public Instruction

Non-financial Assistance

Perry Garden Club

Rotary Club

Chamber of Commerce

Junior Chamber of Commerce

Kiwanis Club

State Organizations

Agricultural Extension Services
Agricultural Experiment Station
University of Florida
Gainesville, Florida

Dade County Board of Public Instruction
1410 N. E. 2nd Avenue
Miami 32, Florida
(Audio-Visual Materials)

Florida Audubon Society
Mr. C. Russell Mason, Executive Director

Florida Board of Conservation
Mr. W. I. Carlton

Florida Board of Parks
Mrs. G. T. Smith, Jr.

Florida Department of Agriculture
Mr. Tom Birchnell

Florida Development Commission
Mr. James Tayes

Florida Federation of Garden Clubs, Inc.
Mrs. Roger Waybright

Florida Forest Service
Mr. John Bethea
Mr. Ed Howard

Florida Geological Survey
Dr. Robert O. Vernon

Florida State University
Dr. William Bruckheimer
Department of Geography

Florida Wildlife Federation
Educational Committee
Milton, Florida

Game and Fresh Water Fish Commission
Mr. Earle Frye
Governor's Committee on Resource-Use Education
Mr. Henry Becker

Outdoor Recreation Planning Committee
Mr. Ney Laudrum

State Board of Health
Dr. Edward Fleming
Mr. David B. Lee

State Department of Education
Mr. Zollie Maynard

Stetson University
Dr. Robert S. Chauvin, Head
Department of Geography-Geology

University of Florida
Dr. Charles Durranee, Head
Department of Secondary Education
Dr. R. L. Fairing
General Extension Division

University of South Florida
Dr. Robert H. Fuson

Private Organizations

American Forest Products Industries, Inc.
1816 N. Street, N.W.
Washington 6, D. C.

American Forestry Association
919 17th Street, N.W.
Washington, D. C. 20006

American Planning and Civic Association
901 Union Trust Building
Washington, D. C. 20005

American Tree Association
1214 16th Street, N.W.
Washington 6, D. C.

Izaak Walton League of America
1326 Waukegau Road
Glenview, Illinois 60025

National Association of Soil and
Water Conservation Districts
1435 G. Street, N. W.
Washington, D. C. 20005

National Audubon Society
1130 Fifth Avenue
New York, N. Y. 10028

National Conference on State Parks
901 Union Trust Building
Washington, D. C. 20005

National Lumber Manufacturers Association
1319 18th Street, N. W.
Washington 6, D. C.

National Parks Association
1300 New Hampshire Avenue, N. W.
Washington, D. C.

National Recreation Association
8 W. Eighth Street
New York, N. Y. 10011

National Wildlife Federation
1412 Sisteenth Street, N. W.
Washington, D. C. 20036

The Nature Conservancy
2039 K. Street, N. W.
Washington, D. C. 20006

Southern Hardwood Producers, Inc.
Sterick Building
Memphis, Tennessee

Southern Pine Association
520 National Bank of Commerce
New Orleans 4, Louisiana

Southern Pulpwood Conservation Association
900 Peachtree Street, N. E.
Atlanta 9, Georgia

Sport Fishing Institute
Bond Building
Washington, D. C. 20005

The Wilderness Society
2144 P. Street, N. W.
Washington, D. C. 20037

Wildlife Management Institute
709 Wire Building
Washington, D. C. 20005

Federal

Land and Water Conservation Fund Act of 1965 (Planning, acquisition, and development of public outdoor recreation areas and facilities). State plan not yet available.

Bureau of Sport Fisheries and Wildlife
(Cooperative research, cost-sharing, information, demonstration, and technical assistance to realize potential fish and wildlife resources).

Farmers Home Administration
(Loans available for development of recreational facilities by organizations operating on a non-profit basis).

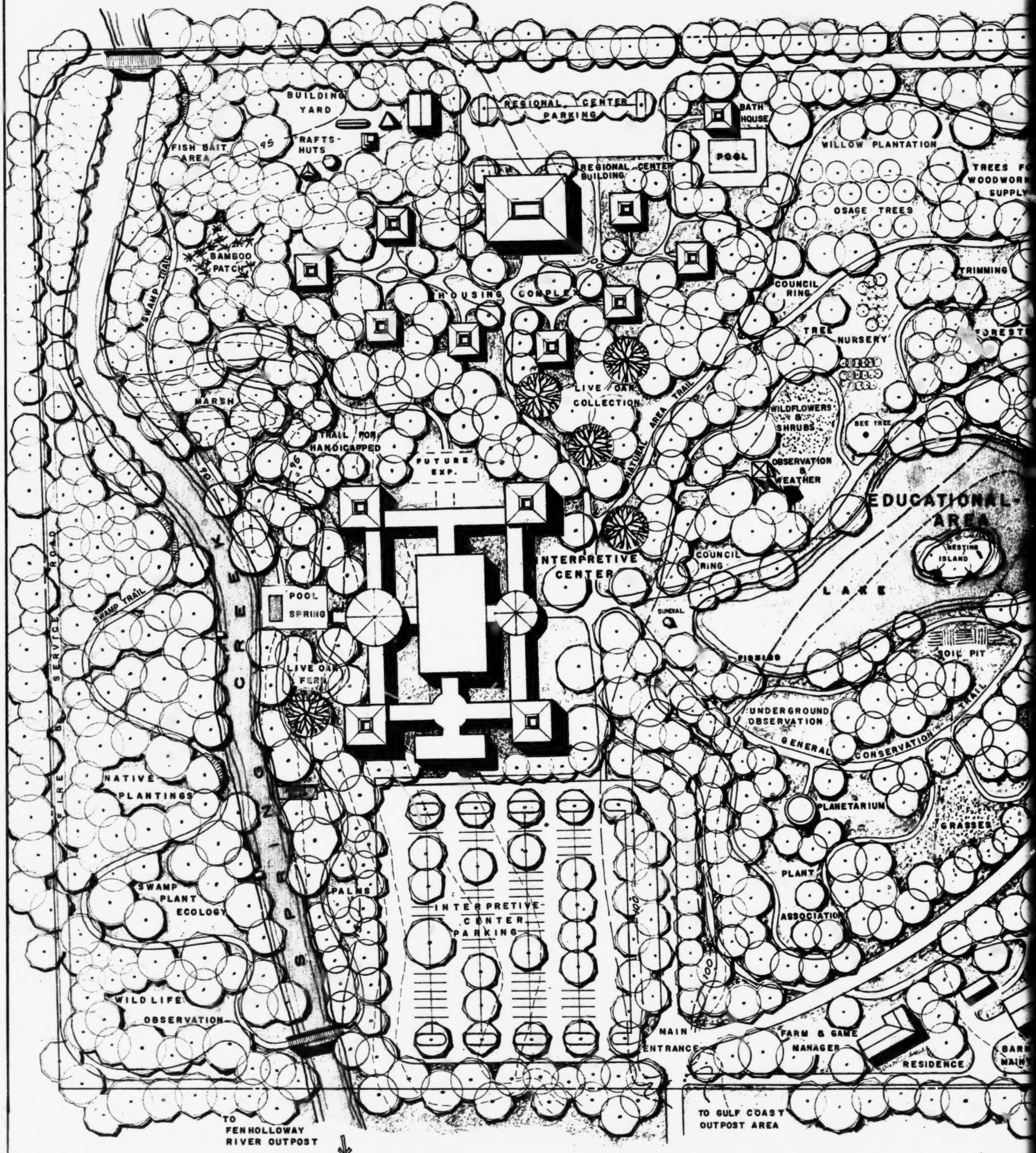
Public Works and Economic Development Act of 1965
(Grants, long-term loans, technical assistance and research. For purchase of land, buildings, machinery and equipment for industrial and commercial use).

Surplus Property Act of 1944
(Real property may be acquired for public park and recreational purposes at 50% of fair market value).

Elementary-Secondary Education Act of 1965 - Title I
(Purchase of equipment, salaries of personnel).

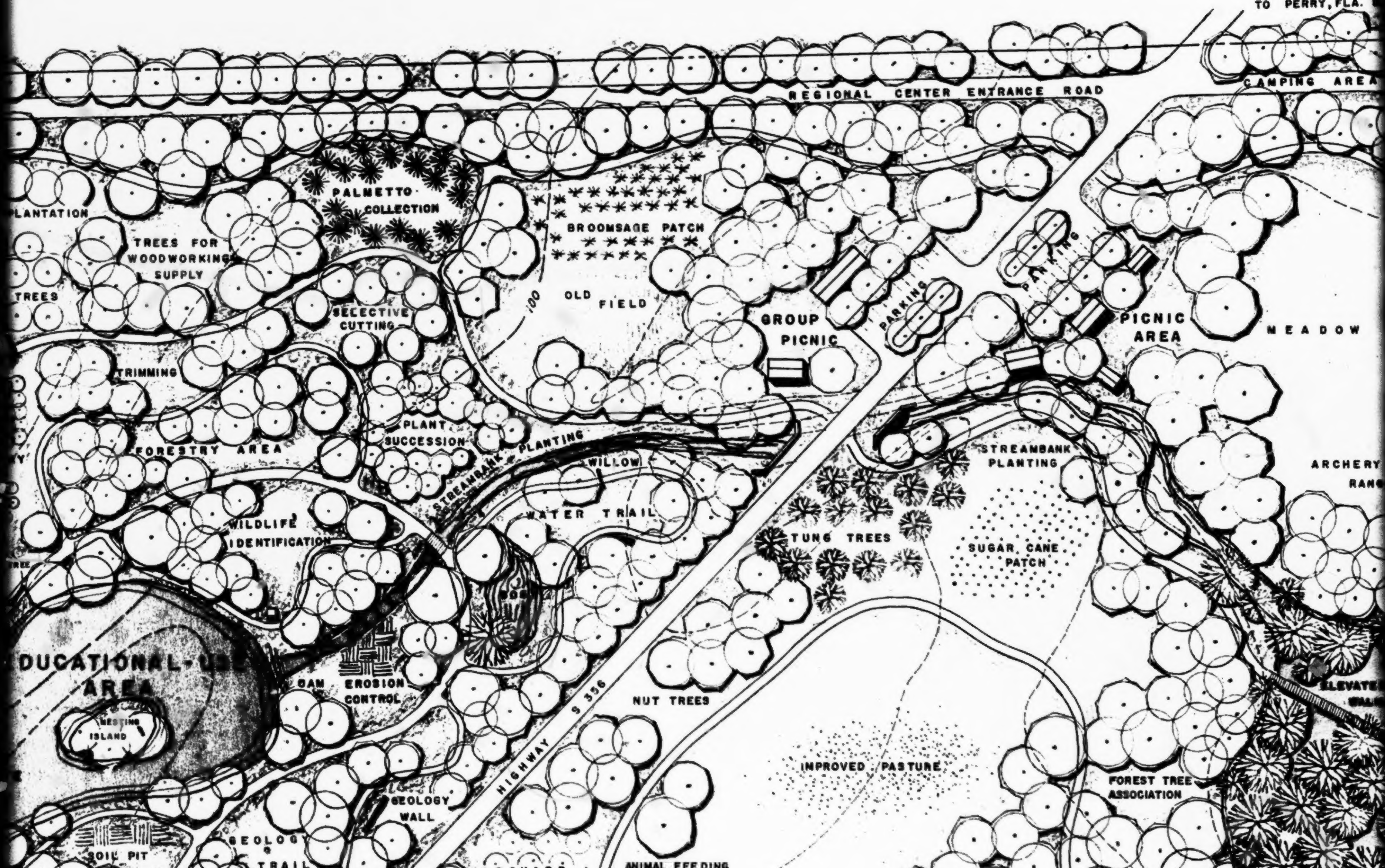
Section 702 of the Housing Act of 1954
(Interest-free advances to State or local public bodies to assist in the planning of specific public works or facilities, including recreation projects).

Department of Housing and Urban Development
Housing Amendments of 1955, Title II
(Loans may be made to small communities for the construction and improvement of local public facilities, including recreation facilities).


BUILDING YARD
RAFTS-HUTS
FISH BAIT AREA
REGIONAL CENTER PARKING
BATH HOUSE
POOL
WILLOW PLANTATION
TREES FO
WOODWORK
SUPPLY
REGIONAL CENTER BUILDING
OSAGE TREES
BAMBOO PATCH
SWAMP TRAIL
HOUSING COMPLEX
COUNCIL RING
TRIMMING
TREE NURSERY
FOREST
LIVE OAK COLLECTION
MARSH
WILDFLOWERS & SHRUBS
BEE TREE
TRAIL FOR HANDICAPPED
FUTURE EXP.
NATURAL AREA TRAIL
OBSERVATION & WEATHER
EDUCATIONAL
AREA
NESTING ISLAND
FIRE & SERVICE ROAD
INTERPRETIVE CENTER
COUNCIL RING
LAKE
POOL
SPRING
SPRING CREEK
SUNDIAL
LIVE OAK FERN
FISHING
SOIL PIT
UNDERGROUND OBSERVATION
GENERAL CONSERVATION TRAIL
NATIVE PLANTINGS
PLANETARIUM
GRASSES
SWAMP PLANT ECOLOGY
PALMS
INTERPRETIVE CENTER PARKING
PLANT
ASSOCIATION
WILDLIFE OBSERVATION
MAIN ENTRANCE
FARM & GAME MANAGER
RESIDENCE
BAR
MAIN
TO GULF COAST OUTPOST AREA
TO FENHOLLOWAY RIVER OUTPOST
95
96
100

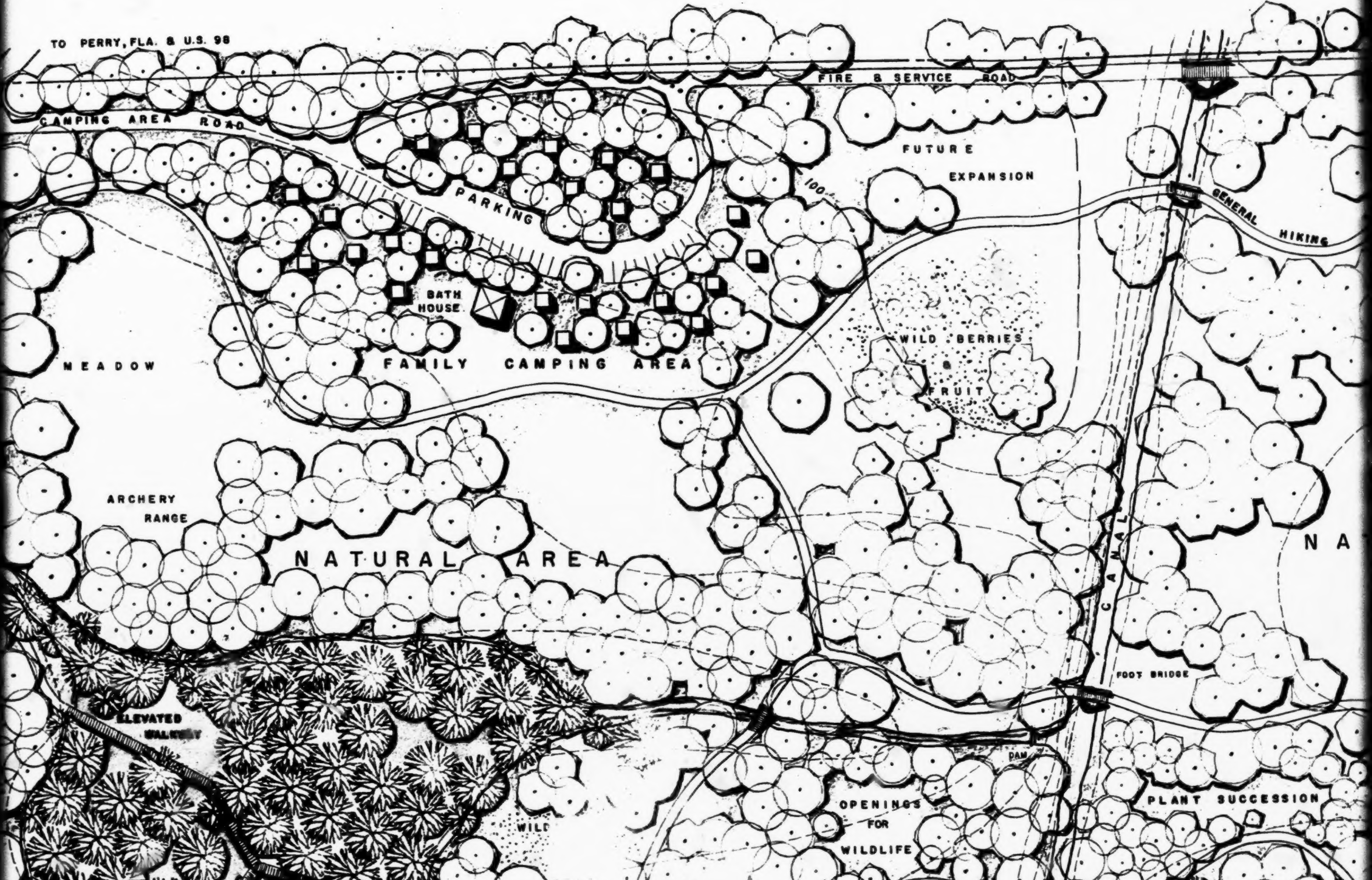
PLANNERS AND ENGINEERS COLLABORATIVE
LAND-USE AND SITE PLANNING • DESIGN CONSULTATION • CIVIL ENGINEERING
[illegible] • ATLANTA GEORGIA 30305 • PHONE 404-231-6600

REGIONAL LA


TO PERRY, FLA.
CAMPING AREA
REGIONAL CENTER ENTRANCE ROAD
PLANTATION
PALMETTO COLLECTION
BROOMSAGE PATCH
TREES FOR WOODWORKING SUPPLY
TREES
OLD FIELD
SELECTIVE CUTTING
GROUP PICNIC
PARKING
PARKING
PICNIC AREA
MEADOW
TRIMMING
FORESTRY AREA
PLANT SUCCESSION
STREAMBANK PLANTING
WILLOW
STREAMBANK PLANTING
ARCHERY RANG
WILDLIFE IDENTIFICATION
WATER TRAIL
TUNG TREES
SUGAR CANE PATCH
EDUCATIONAL-USE AREA
NESTING ISLAND
DAM EROSION CONTROL
NUT TREES
HIGHWAY S 356
ELEVATED
IMPROVED PASTURE
FOREST TREE ASSOCIATION
GEOLOGY WALL
SOIL PIT
GEOLOGY TRAIL
ORCHARD
ANIMAL FEEDING STATION
SERVATION TRAIL
MANAGEMENT AREA
GRASSES
EXPERIMENTAL PLOTS
GRASSES
MANAGEMENT TRAIL
EXPERIMENTAL PLOTS
SCRUB OAK
YOUNG HARDWOODS
STUMP
FARM UNIT
FOOD PATCH
SOIL CONSERVATION DEMONSTRATION
RESIDENCE
BARN & MAINT
POULTRY
BUCKEYE CELLULOSE LAND

LABORATORY- CENTER OF OUTDOOR

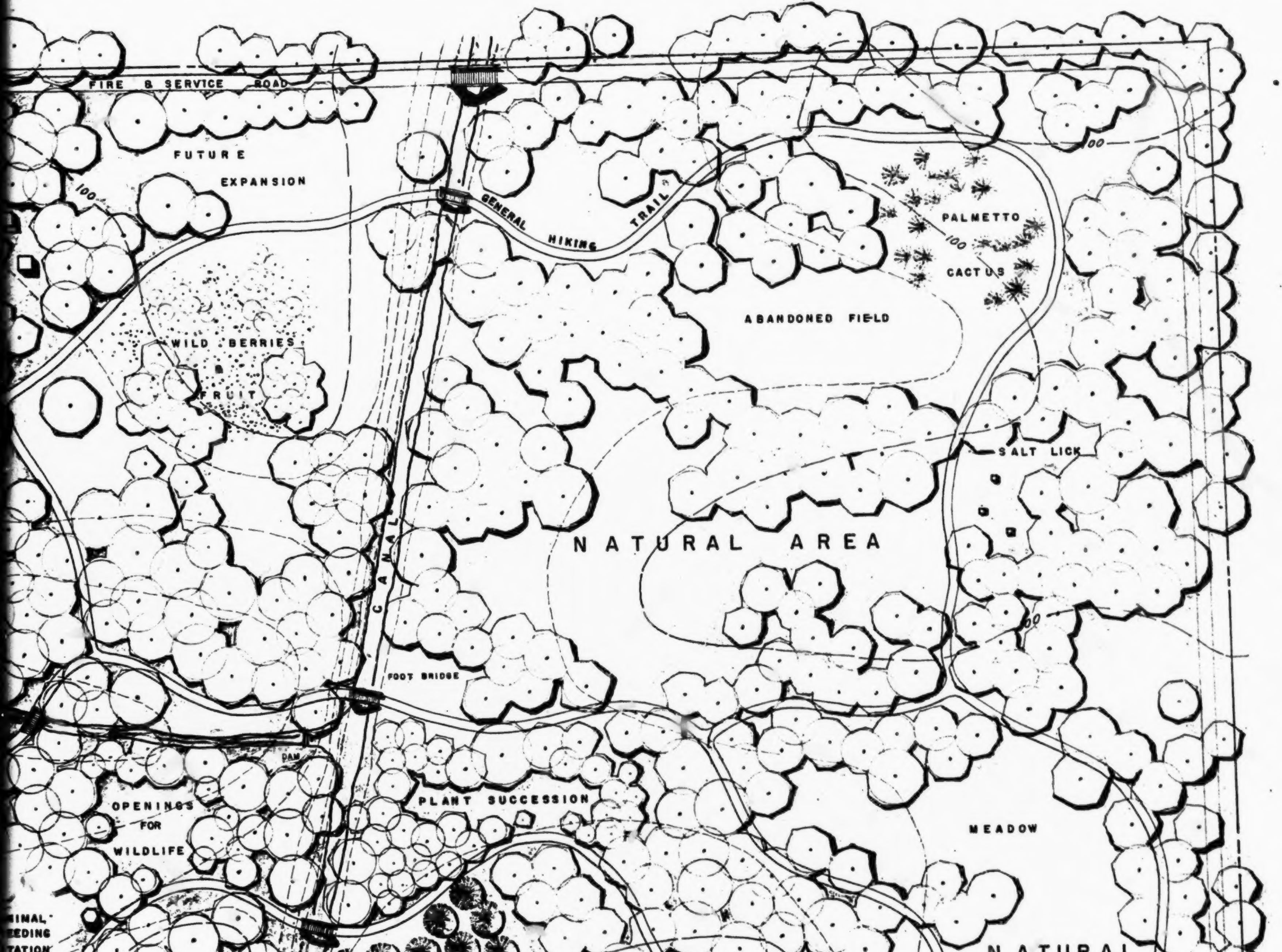
HAMPTON SPRINGS FL


TO PERRY, FLA. & U.S. 98
FIRE & SERVICE ROAD
CAMPING AREA ROAD
FUTURE EXPANSION
PARKING
100
GENERAL HIKING
BATH HOUSE
MEADOW
FAMILY CAMPING AREA
WILD BERRIES & FRUIT
ARCHERY RANGE
NATURAL AREA
CANAL
NAT
FOOT BRIDGE
ELEVATED WALKWAY
DAM
PLANT SUCCESSION
OPENINGS FOR WILDLIFE
WILD
OBSERVATION PLATFORM
ANIMAL FEEDING STATION
CYPRESS SWAMP
TREE PLANTATION
DAY CAMP
100
WILDLIFE PLANTINGS
DRAINAGE
SEED TREES
SCRUB OAK
SLASH & LONGLEAF PINE PLANTATION
FORES
M
FOREST SOILS PIT
WILDLIFE MANAGEMENT
DEN TREE
MATURE PINE
SLASH PINE
FIRE & SERVICE ROAD
OLD LOGG
WEAVER-LOUGH

NOTE: PHOTOG
PORTABLE UN

DOOR RECREATION IN RESOURCE USE

FLORIDA


FIRE & SERVICE ROAD
FUTURE EXPANSION
100
GENERAL HIKING TRAIL
PALMETTO
CACTUS
100
ABANDONED FIELD
WILD BERRIES & FRUIT
SALT LICK
NATURAL AREA
CANAL
FOOT BRIDGE
DAM
OPENINGS FOR WILDLIFE
PLANT SUCCESSION
MEADOW
IMAL FEEDING TATION
TREE PLANTATION
FOREST TRAIL
FIRE PREVENTION
NATURAL AREA
DAY CAMP
THINNING
FIRE TOOLS
100
SEED TREES
FOREST MANAGEMENT
SELECTIVE CUT
SLASH & ONGLEAF PINE ANTATION
DRAINAGE
MATURE PINE
WOODLAND POND
FIRE & SERVICE ROAD
OLD LOGGING OPERATION
WEAVER-LOUGHRIDGE LUMBER CO. LAND
NORTH
20
160
80 40 0 80 240

NOTE: PHOTOGRAPH BLINDS TO BE PORTABLE UNITS.

RESOURCE USE

MASTER SITE DEVELOPMENT FLAN

NOVEMBER 1966 SCALE: 1" = 80'